MONTANA
OUTDOORS

MARCH/APRIL, 1972

FIFTY CENTS

EDITORIAL CREED

To promote the preservation of a livable environment for wildlife, which is a quality environment for man

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MONTANA OUTDOORS

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THE COVER

Beartooth Mountain gets its name from the jagged rock fang on its flank and then passes on the handle to a piece of true wilderness—the Beartooth Country. The cover photo and story (page 18) are both by Ruth Koch. The wolverine on the back cover is from the camera of Alan Nelson. The story (page 2, by Vern Craig) is the fifth in a series of articles concerning Montana's rare and endangered wildlife.

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editorial

It just isn't done here.

Litter is ugly, costly and unhealthy. Some also claim that it's a fire and traffic hazard. But whatever the charge, it's a cinch that litter is unwanted in today's society.

In the last few years, there has been a rising public concern over the recurring litter problem, an occurrence for which we can all be thankful. But the problem is still here and deserving of even more attention.

This year, motorists will probably drop about 18,000 pieces of trash on every mile of primary highway in the United States, approximately 130 people will die from litter-fed fires and more than $1 billion will be spent on litter clean-up (one half of which will be tax money spent to remove discarded trash from the nation's parks and recreation areas).

Who litters? Keep America Beautiful, Inc., a national non-profit, anti-litter organization, says that the chronic litterbug is more often young than old, usually a man and probably a resident rather than a tourist. The latter generality may surprise many Montanans who thought that much of the litter they saw along the state's scenic roads and trails was tossed by out-of-state hands.

Many feel that industry is to blame for much of the litter problem. And, basically, they are. Industry produces the litter. But it's not the brewers, the soft drink companies, the newspaper publishers or the paper cup manufacturers who litter. It's the consumer, the person who buys and then discards these products.

Montana has good litter laws with stiff penalties. All enforcement officers (game wardens, highway patrolmen, city policemen, etc.) are directed by legislative act to enforce litter laws and regulations. Unfortunately, these enforcers have more laws to enforce than they can possibly find time for, so littering, which is quite low on the crime severity scale, receives less attention than it needs.

But should we depend on law enforcement officials to prevent littering? Or should we take it upon ourselves to curb litter?

Montana has scenic grandeur that other states are hard-pressed to match. To deface our landscapes with ugly, cast-off trash is a thoughtless, selfish and inconsiderate act. Hopefully, public conscious on this matter will keep littering at a low level this year and even less in the future.

Next time you see someone litter, shake your head and tell them, "It just isn't done here." And then ask them to pick it up.

—Bill Schneider

THE WOLVERINE

by vern craig

(photo by Alan Nelson)

Once considered almost extinct, this backwoods toughy seems to be increasing its numbers in Montana.

Wolverine tracks are easily identified by the animal's interesting habit of putting its hind foot almost directly on the track made by the front foot, creating a "double track."

WHEN it comes to delight in killing, willingness to fight, and sheer tenacity to life, the weasel has few peers. It and the rest of its kin are a family of real toughies. The wolverine, largest member of the weasel clan, is proportionately endowed with the family traits.

Tales of wolverines passed down through the years have no doubt been dramatized and exaggerated to a point that a large part of literature written about this animal is now pure fiction. The fact remains, however, that they can hold their own in the backwoods struggle for survival.

The wolverine is known by many names, but his professional handle is *Gulo luscus*. The name is borrowed from the Latin vocabulary — *gulo*, meaning throat or gullet and *luscus*, meaning half blind.

Cross a bear and skunk, and what would you have? To quip, one might say you would have a highly offended bear. Actually, were it possible, the result might be an animal similar to a wolverine — a thick-bodied, shaggy beast with strong limbs and big feet. The wolverine would likely be classed as a middleweight in the animal world, weighing about 20-40 pounds.

Adults are a rich, dark brown (almost black) color with two light brown or yellowish stripes that begin at the shoulders, run along each side, join on the rump and end part way up the tail. Young are considerably lighter in color.

Range and Distribution

Apparently, wolverines were never numerous. Perhaps the large areas that they range and their anti-social nature tended to keep populations sparse. Predation upon them by man and encroachment of civilization into their native habitat have no doubt been important factors in their distribution and abundance. They once inhabited a large area of the northern world including Asia, Europe and North America. On the North American continent, they roamed forested lands from the Arctic, south into the New England states and west into Colorado and southeastern California.

Today, the range of the wolverine is much smaller. Some reports state that it has been more than a century since the animal lived in the "Wolverine State" of Michigan.

In 1968, a wolverine was killed near Boulder, Wyo. This substantiated scattered reports of wolverine sightings that had persisted in that state for years. Rex Carsi, Assistant State Game Warden for the Wyoming Game and Fish Commission, says that his agency still gets occasional reports of wolverine observations.

Idaho also continues to record occasional reports and a few specimens from the northern two-thirds of the state.

Wayne W. Sandfort, chief of wildlife management for the Colorado Division of Game, Fish and Parks, reports that the wolverine's presence in that state is "extremely doubtful."

In 1965, a deer hunter in Oregon shot a wolverine in the Cascade Mountains. Another, also from central Oregon, was caught by a marten trapper in 1969. A number of unverified wolverine sightings have since been received by the Oregon Game Commission according to Chester Kebb, small game management biologist for the commission.

J. Burton Lockhart, Chief of the Game Management Division for Washington State Department of Game, says that wolverines have reappeared in that state during the last 5-8 years. He predicts that their present range has extended into the Cascade Mountains to the Columbia River and across the northern portion of Washington, but excludes the Olympic peninsula and coastal hills region.

In Montana, wolverines not only persist, but appear to have extended their range in the last several years. They aren't numerous by any means, but department estimates of furs taken in Montana from 1960 through 1970 show a total of 225 wolverines. During this period, the lowest estimate was eight animals in 1960, and the high was 54 in 1965. In 1970, the estimated take was 30.

Fletcher Newby, Executive Director of the Environmental Quality Council, has done considerable research on wolverine distribution in Montana and has co-authored two articles regarding the animal's range. He stated that the wolverine was near extinction in most of Montana by 1920, including Glacier National Park. Beginning about 1940, however, they were seen, shot and trapped with increasing frequency in the northwestern part of the state. In 1955 Newby, along with Philip L. Wright, wrote, "examination of National Park service records indicated that tracks were first seen again in 1933." It was felt that migrants from Canada re-established in Glacier Park. The park

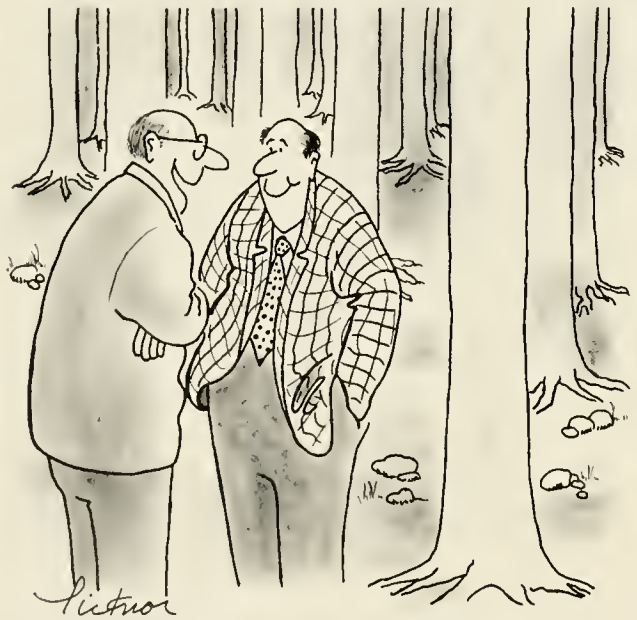
THE WOLVERINE continued

then served as a reservoir from which the animals extended their range to cover roughly the western one-third of Montana.

Devil in Disguise?

So much has been written about the ferocity, strength and evil disposition of the wolverine that one would almost believe that it's a devil's incarnate. This backwoods toughy is powerful, courageous and isn't likely to take any honors for congeniality, but its fierceness has been overrated. They are stealthy and most often prefer not to be seen by man. It's a rare occasion for hunters or trappers to even see one.

Although bonafide accounts of wolverines attacking humans are very scarce, it has often been said that a female with cubs will certainly attack. Edwin C. Park wrote in AUDUBON (January/February, 1960) of an encounter that he and his wife had with a female and two cubs in Mount McKinley Park (Alaska) in 1958. When confronted by the humans, the mother retreated with her two youngsters and showed no inclination to attack.



"I doubt if anybody has seen a poem as lovely as a thousand board feet of number one white pine."

Reprinted from AUDUBON, the magazine of the National Audubon Society; Copyright (c) 1971.

Victor H. Cahalane in his book, *Mammals of North America*, described crossing trails with a wolverine that was hunting the same flock of ducks as he was. He stated, "For a long minute it stared vengefully, then its mouth opened in a snarl of rage, but it didn't try to attack me. With a final glare it turned and loped angrily off into the alders."

Habits and Habitat

For a brief period during the mating season, April through August, pairs may travel together, and young remain under the able protection of their mothers until early winter. Aside from these patterns of life, wolverines are seldom seen together.

The lives of most wild animals are largely occupied with searching for food, and the wolverine is no exception. They are primarily night wanderers, but are often out during daylight. The short, powerful limbs and heavy body aren't adapted for speed, so the wolverine must depend on stealth, cunning and a keen nose to satisfy a voracious appetite. Hour upon hour they plod or lope along, leaving a large, five-toed track. They usually travel alone and cover great distances on their hunts.

The daily menu is apt to include a large amount of carrion garnished with small mammals. Larger animals may be taken, if they can be cornered, leaped upon, or bogged down in deep snow. Some sources contend that wolverines will kill even deer and moose in deep snow. Deer and moose have been found with large holes in their backs where an attacker had torn and chewed its way into the backbone. Tracks around the victims' carcasses fingered the wolverine as the assassin.

Two Enemies, But Only One Predator

There are at least two animals that appear to be more than a match for the wolverine — the porcupine and man. A prickly meal of porcupine quills has often proven too much for this predator. Dead wolverines have been found with quills deeply imbeded in their mouth, throat and intestines. Here, the wolverine becomes a victim of its own hunger.

Man is probably the wolverine's only predator. In Montana, the wolverine isn't protected and is

occasionally shot and trapped. In spite of their alleged ability to avoid traps, they do often fall into the jaws of cold steel. Possibly, trapping was an important factor in their disappearance from portions of their original range.

Wolverine pelts have never brought a high price in the fur markets. They are bulky and scarce. Natives of the Arctic, however, prize them highly, both for mystical and practical reasons. Eskimo hunters traditionally wore belts or other articles made from wolverine skin in belief that they would be endowed with some of the animal's cunning and strength. Fur is prized as trimmings for cuffs and parkas because the guard hairs resist the gathering of frost.

The wolverine is essentially a backwoods animal, requiring vast remote areas to roam. Perhaps its range is as great as can be expected, considering the inroads that civilization has made into its domain. The established wildernesses and parks in Montana are its salvation in the Treasure State. As long as these wild areas exist, this grumpy fellow, a true wilderness species, is assured at least a fighting chance for survival.

THE WOLVERINE

Classification: Order - Carnivora
Family - Mustelidae
Genus - *Gulo*
Species - *Luscus*

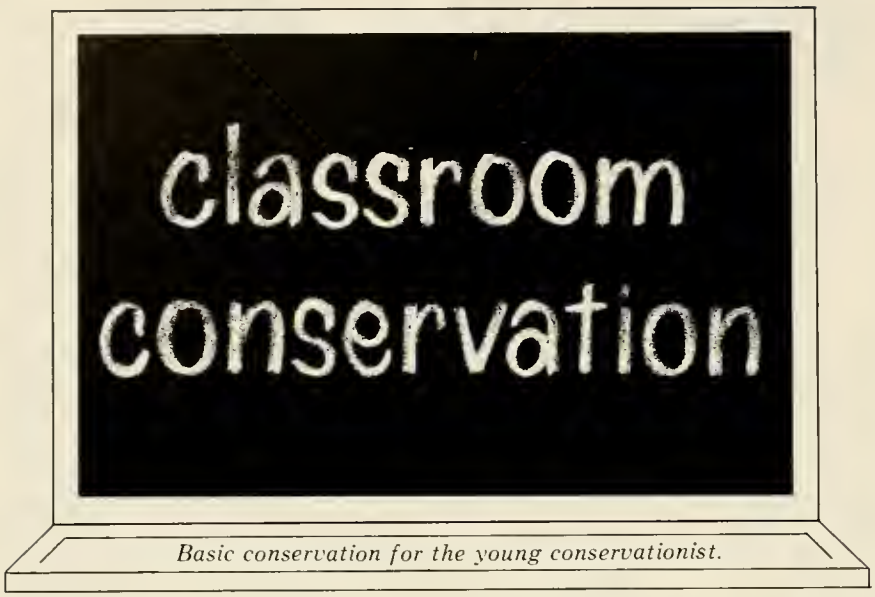
Status: Rare in certain localities, stable and increasing in others.

Distinguishing Characteristics: A thick-bodied, medium-sized bear-like weasel. Dark brown with two yellowish stripes that start at the shoulders and join at the rump. Large feet. Weighs about 30-40 pounds. Is 29-32 inches in length plus 7- to 9-inch bushy tail.

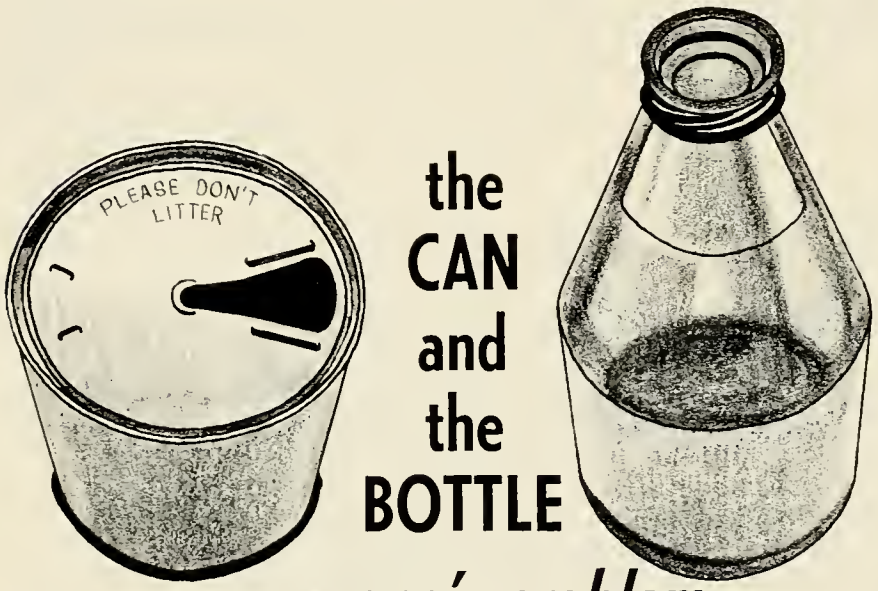
Range: High mountain wild areas in Montana, Idaho, California, Wyoming, Oregon and Washington, Canada and Alaska.

Reasons for Decline: Man's encroachment on remaining wilderness areas, which are an essential part of the wolverine's life. Some are also trapped and shot, but these losses seem minor compared with loss of wild habitat.

Management Measures: The wolverine is a true wilderness wildlife species that will eventually disappear unless the few remaining wild areas are protected forever from man's advance. As long as the animal's life requirements are found in Montana and other western states, chances are good that the legendary wolverine will survive. As with the grizzly bear, the fate of the wolverine will closely follow that of the wilderness. In addition to habitat maintenance, more protection—or maybe even complete protection—for the wolverine should be seriously considered.



Basic conservation for the young conservationist.



the CAN and the BOTTLE

everyone's problem

In 1972, the average American will buy approximately 600 pounds of packaging materials, 90 per cent of which he will discard after a short use. The resulting junk piles and litter messes owe much of their magnitude to two very common elements of modern man's life style—the can and the bottle.

No one denies that the disposal of these containers pose a big solid waste and litter problems. But unlike some environmental riddles, these have solutions. With your everyday actions and with some special effort, you can help curb these threats to the total environment and a beautiful America.

A list of actions and activities follows which will help everyone combat this part of the ever-worsening solid waste problem. Try one of them instead of watching dumps grow or shaking your head when you see someone throw out a beer can. The results can be personally and economically rewarding.

- Buy only returnable containers that can be recycled . . . and return them. (A list of Montana beverage container recycling centers appears on page 7.)

- Encourage your school, church or other similar group to start a recycling project. Besides helping to preserve a quality environment, you can make a good profit for your group's treasury. For example, a YMCA group in Manhattan, Kan., pocketed $1,522 for collecting and selling 350,000 aluminum cans. Concentrate your collections at businesses that regularly have a large number of cans and/or bottles to discard. Many businessmen are glad to donate their throwaways to recycling projects.

- Make your recycling project doubly effective by expanding it into an anti-litter campaign. Organize litter pick-ups along roads and in parks, campgrounds and other recreation areas. Promote the use of litter bags and the dissemination of garbage cans. And generally, condemn the litterbug.

- Check around to see if there is an environment-minded group that is already collecting beverage containers for recycling. If you find one, join it and/or support it. The Chamber of Commerce, the Scouts, the local newspaper and the nearest college are all good possibilities.

- Make sure that you buy aluminum and non "tin" cans. "Tin" cans are made of mixed metals and their reclamation is difficult. Aluminum, on the other hand, can be easily reclaimed. On the reclamation market, tin cans only bring $20/ton, whereas aluminum cans are worth $200/ton. The two types of cans can be distinguished by noticing that aluminum cans never have a seam down the side or on the bottom.

ACTION—your key to a better environment

• Encourage the banning of disposable or throwaway containers. Finland, British Columbia and a city in Maryland have already outlawed throwaway bottles. Many other cities, states and countries have considered it.

• Write to your local legislators and let them know that your class or group is concerned about this matter. (A complete list of state senators and representatives can be obtained by writing to Mr. Frank Murray, Secretary of State, State Capitol Building, Helena, MT 59601.)

• Support manufacturers and bottling companies that produce and distribute returnable containers. Denounce and boycott those that don't. Discover which brands aren't returnable and then write a letter to the company officials and politely tell them why you think they should change their ways.

• Investigate the possibility of "glasphalting" local streets and highways. Glass bottles can now be crushed and used as a substitute for sand in the production of asphalt. Manufacturers call the new product "glasphalt." Contact your mayor or the city or state highway department and ask if "glasphalt" can be used in your community.

• Instead of always buying individual containers which hold only one serving, purchase beverages in larger receptacles and use a glass.

EDITOR'S NOTE — "Classroom Conservation" was designed and written for the young conservationist, and especially for use in the schools. Beginning with this issue, it will be a regular feature in MONTANA OUTDOORS. Comments on its contents or suggestions for future sections are welcome.

Much of the material found in the article "the can and the bottle" was taken from the "EVERYMAN'S GUIDE TO ECOLOGICAL LIVING" by Greg Cailliet and others, The Macmillan Company, New York. This little "action guide" contains scads of information on how everyone can help create a better environment.

Montana's beverage container recycling centers

Fred Briggs Distributing Company
3925 1st Ave. So.
Billings, MT 59101

Intermountain Beer Distributing Company
2201 Minnesota Ave.
Billings, MT 59101

Mustang Beverage Company
719 4th Ave. No.
Billings, MT 59101

Cardinal Distributing Company
805 North Ida Avenue
Bozeman, MT 59715

Rudy's Incorporated
707 East Peach
Bozeman, MT. 59715

Bob & Joe's Wholesale Company
813 South Arizona
Butte, MT 59701

Kenny's Distributing Company
1015 South Montana
Butte, MT 59701

Reynolds Wholesale
200 Watson Avenue
Butte, MT 59701

Triangle Distributors
219 South Front
Conrad, MT 59425

Glasgow Distributing
725 Railroad Alley
Glasgow, MT 59230

Sinclair Produce Distributing Incorporated
GN Right-of-Way
Glasgow, MT 59230

Glendive Coca-Cola Company
220 South Douglas
Glendive, MT 59330

Devine & Asselstine Incorporated
124 2nd Avenue South
Great Falls, MT 59405

Gusto Distributing Company
624 3rd Street South
Great Falls, MT 59405

Gusto Distributors of Havre
1229 1st
Havre, MT 59501

Havre Distributors
935 1st
Havre, MT 59501

Clausen Distributing Company
West of Helena
Helena, MT 59601

Mt. Helena Distributing
1229 North Ewing
Helena, MT 59601

Tucker Distributing Company
Great Northern Industrial Site
Helena, MT 59601

Carver Distributing Company
75 1st Avenue WN
Kalispell, MT 59901

Flathead Beverage Company Incorporated
440 West RR
Kalispell, MT 59901

Lee Distributing
22 5th Avenue West
Kalispell, MT 59901

Johnson/Nicholson
403 South Dawes
Lewistown, MT 59457

Kent Distributing Company
109 West 2nd
Libby, MT 59923

Lee Distributing Company
22 5th Avenue West
Libby, MT 59923

Bridger Distributing
Park & B
Livingston, MT 59047

Valley Distributing Company
509 East Park
Livingston, MT 59047

Ace Beverage Company
307 Palmer
Miles City, MT 59301

Dodd Distributing Company
419 North 9th
Miles City, MT 59301

Earl's Distributing Company
510 East Railroad
Missoula, MT 59801

Missoula Distributing Company
3 Commerce
Missoula, MT 59801

Zip Beverage Company
938 Phillips
Missoula, MT 59801

Tri-County Distributors
346 Hazel
Plentywood, MT 59254

Roundup Bottling Company
220 2nd East
Roundup, MT 59072

Shelby Distributors
120 Central Avenue
Shelby, MT 59474

Triple C Distributors
120 Central Avenue
Shelby, MT 59474

Blue Rock Products Company
202 3rd Avenue NE
Sidney, MT 58270

Goose Lake represents an intimate relationship between mining and the environment. The area around the lake was the site of early mining discoveries and may see further mineral extraction in the near future. Just over the pass from upper Goose Lake lies the heart of the Beartooth Primitive Area. Careful management must prevail if the wilderness quality of this area is to be preserved. (photo by Ruth Koch)

For the Beartooth, the time is NOW!

BY TOM BROWN

The fate of one of Montana's highest and most rugged mountain areas will soon be decided by Congress.

At stake is the Beartooth-Absaroka area of south central Montana and northern Wyoming. Whether it remains an untouched wilderness, or is opened to commercial development, will be resolved by Congress after receiving a recommendation from the Secretary of Agriculture through the U.S. Forest Service (USFS).

The Beartooth-Absaroka area is the land of Granite Peak, Montana's highest mountain at 12,799 feet, and dozens of other craggy, granite faces stretching above the 11,000-foot mark. It is also the land of deep, stream-filled valleys and flat, lake-studded plateaus. Mountain goats and Bighorn sheep call its rock cliffs home while elk, deer, moose and the rare grizzly roam over more gentle terrain.

Streams born when heavy winter snowpacks and glaciers melt in the spring flow into tributaries of the Yellowstone River and provide drinking water for Billings, Miles City and many other cities in southeastern Montana.

The major streams—the East and West Rosebuds, Boulder, Stillwater, Rock Creek and the Clark's Fork of the Yellowstone —are all famous among fishermen for their snappy trout. The high lakes, meanwhile, are home for California golden trout and Arctic grayling (the latter fish is classified as rare by the Bureau of Sport Fisheries and Wildlife). The rainbow, brook and cutthroat trout are also found there.

The area is also a defacto wilderness—even by U.S. Forest Service standards a pristine, untouched land.

Should the Beartooth-Absaroka area be brought into the wilderness system? If so, how much? Or should part or all of it be administered under some other U.S. Forest Service classification and should development be allowed?

Many are pushing for the latter alternative. Top among the anxious developers are the miners, for along the edge of the Beartooth Block lies a belt of igneous rocks clamped between the granite of the south and the sedimentary rocks of the Yellowstone Valley. In this belt is found a large variety of metals, including copper, nickel, chromium, platinum, palladium and rhodium.

A few years back, with the talk of wilderness in the air, miners began roaming over the area and a smaller region near Cooke City, Mont. extending to Goose Lake, primarily in search of copper and nickel. Their search proved fruitful, but the scars they left and are continuing to leave will for decades be grim reminders of their efforts.

The largest discovery appears to have been made by the Anaconda Company on the Stillwater River near the site of an old chrome mine which the company operated under U.S. government contract during the Second World War. The company, which has continued core drillings and sunk an exploratory shaft, has been downplaying the discovery since then, saying that any development is years away and that more experimenting is needed. However, it has purchased a nearby ranch for a potential settling pond and slag dump, thus raising a fervor among conservationists and Stillwater ranchers concerned about the future of the area.

During the same 1970 mining season, another potential environmental tragedy was beginning near Goose Lake, a small alpine lake lying at the head of the Stillwater River a few short miles from Granite Peak.

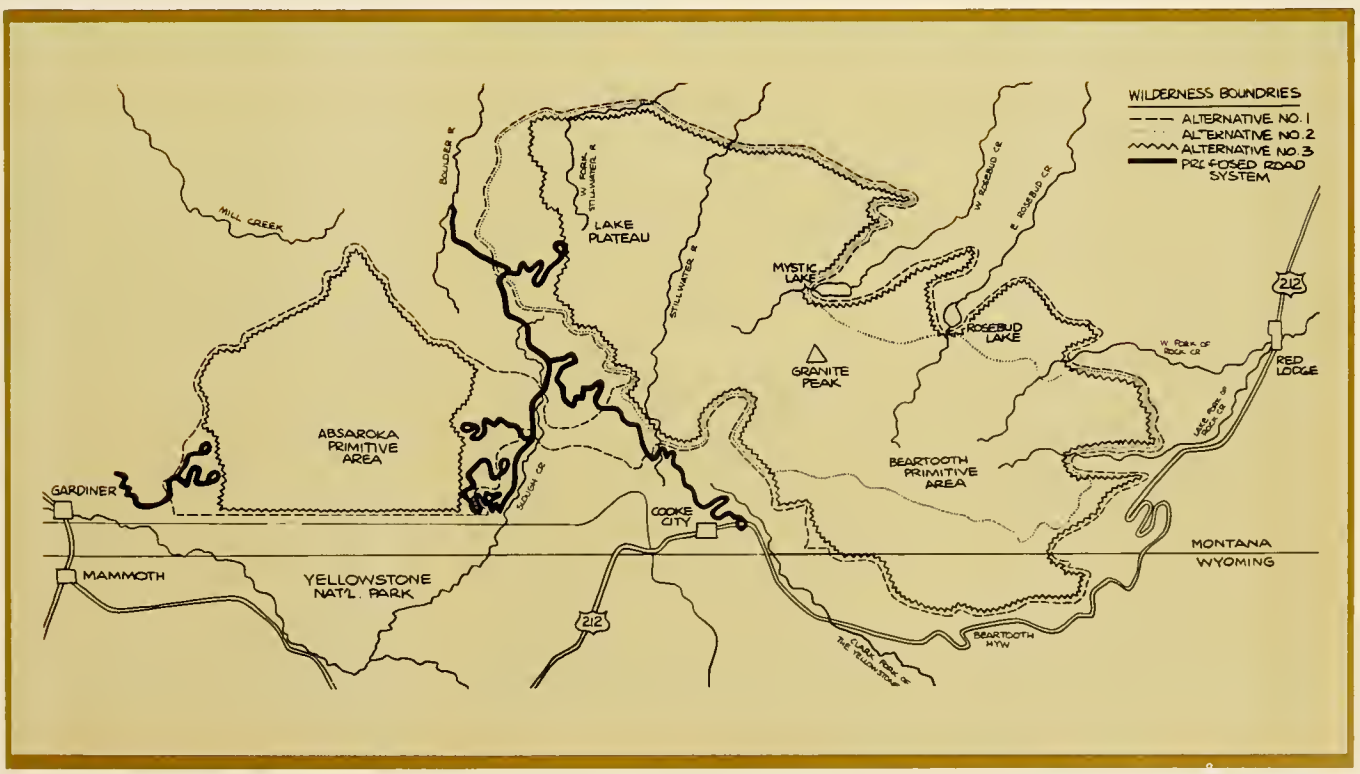
Here Bear Creek Mining Co., like its predecessor, a Kennecott subsidiary, was bulldozing discovery pits near the Goose Lake inlet stream to study known copper deposits. In the process it was threatening a unique cutthroat trout population found in the lake by causing sedimentation in the spawning ground inlet stream.

Fish and Game Department pictures clearly showed bulldozer tracts running across the stream. Former Billings District Supervisor Fletcher Newby (now Executive Director of the Environmental Quality Council) raised his voice in alarm. He said that the Goose Lake cutthroat which the department considered an exceptional sport fishing resource was in danger. He warned that water quality of the Stillwater and other nearby streams could also be damaged.

Back in the Stillwater complex (the 30-mile-long by about five-mile-wide mineralized belt running from the Boulder to the Rosebud rivers), other companies and individuals were operating bulldozers to dig discovery pits and make roads for drilling equipment. The U.S. Forest Service attempted to monitor the mining activity but claimed a lack of authority to stop or control it.

It was then that a group of conservationists headed by Howard Thom of the Wilderness Society and Gay Easton of the Montana Wildlife Federation began to work for state mining law changes and new USFS management directives.

With the aid of state senator Harrison Fagg (R-Yellowstone),



who has hiked the region and supplied the press with pictures and outspoken comments on the mining problem, laws were successfully passed in the 1971 legislature to force restoration of land disturbed by hard-rock miners.

In addition, pressure from U.S. Sen. Lee Metcalf (D-Mont.) and the public caused the U.S. Forest Service to re-evaluate its management policies and to come up with new directives which require USFS personnel to supervise and approve in advance any road building or other exploratory work to be done on public lands.

The result, according to the USFS, was a marked reduction of damaging activity during the 1971 summer. However, the federal mining law of 1872, which gives miners free rein to public lands, still stands and the Stillwater complex portion of the Beartooth seems destined for eventual development.

With this in mind, the USFS completed a study of the complex and reported last summer that mining would, in fact, hurt the wildlife and water resources of the region, depending on the type and extent of such activities.

The report warned that water quality degradation could take place and that the impact on fishing could be:

> . . . Increased stream bed sediment, which is damaging to fish and to the insects upon which they feed;
>
> . . . Increased fishing pressure caused by improved access;
>
> . . . Adverse changes in water chemistry through heavy metal and acid toxicity, sewage and irrigation return flow;
>
> . . . Adverse changes in water temperatures due to erosion;
>
> . . . Damage to the aesthetic values and surroundings of the fishing experience.

Similar gloomy predictions were offered about the wildlife of the complex, with the conclusion that both cattle grazing and big game animals would suffer. For some wildlife, such as the Bighorn sheep herd which winters near Anaconda's Mouat Mine, mining activity could bring disaster. A similar fate was predicted for a small number of grizzlies in the Placer Basin area. Disruptions of elk herd migrations and reductions of deer and moose through habitat loss were also predicted, depending on the amount and type of mining activity.

Conservationists, while working hard to halt the potential mining destruction in the Beartooth, have conceded that the mineralized area is already "developed" in a wilderness sense, so they have not included it in their wilderness boundary recommendations. However, major threats have surfaced to hack away at parts of the Beartooth—Absaroka area that are still unquestionably wild.

One threat comes from the timber interests, which would like access to an estimated 64,000 acres of harvestable forest in the Absaroka area. Wilderness classification would prohibit such use. Howie McDowell, representing the East Side Forest Practices Committee of the Western Wood Products Association at November, 1971 USFS hearings, pleaded that the Absaroka be left in a nonwilderness state.

EDITOR'S NOTE: Tom C. Brown, 24, is a member of the Wilderness Society and has spent much of his time backpacking and mountain climbing in the Beartooth. He is outdoor editor and assistant city editor of the Billings Gazette (daily newspaper). His interest in outdoor recreation and conservation is reflected in a weekly column entitled "Out and About," which he instigated last year. Brown has a Bachelor of Arts degree in history from Oregon State University, Corvallis, and a Master's degree in journalism from Northwestern University, Evanston, Ill.

Other user groups, such as a spokesman for the Rough-Riders, a Billings four-wheel drive club, have asked for some development of the wilderness to accommodate their interests.

The biggest remaining threat to the wilderness has, however, come from the U.S. Forest Service. Robert Miller, head of the USFS wilderness study, says his agency must look at alternate proposals for use of the Beartooth wilds. With this in mind, the USFS has proposed a road system connecting Big Timber, Mont. with Cooke City, Mont. by a special road corridor between them to be established through the Beartooth and Absaroka wilderness areas via the Boulder River. (See map, page 9.)

The main road would be a "scenic," paved variety which the USFS promises to build with an eye upon environmental impact. Secondary roads would be built up Rainbow Creek to near Fish Lake, from the Cooke City road to Wounded Man Creek to the Yellowstone Park boundary and into heavily timbered areas to the west of Slough Creek. A fourth secondary road is envisioned from Jardine to Crevice Creek.

This road system, the USFS says, would open up the area for more people who would come by car and motor-scooter as opposed to horse and hiking. The agency also envisions the road creating a popular tourist loop from Red Lodge to Big Timber via the Beartooth Highway. This idea has long been backed by Big Timber businessmen, although some in Red Lodge are

concerned that a Big Timber road would channel off Yellowstone Park visitors now passing through their town.

While it would be good for tourism, the road would be bad for wildlife. The USFS report notes that there would be some disruption of grizzly habitat on Slough Creek, possible migration interruption for other big game animals and greater pressure on the wildlife from more hunting and fishing via better access.

The U.S. Forest Service, in its preliminary recommendations last fall, suggested two other wilderness options. One would create a wilderness area of some 538,310 acres including both the present Absaroka and Beartooth Primitive areas plus 250,000 acres of additional, neighboring land. Notably included here would be the lake region of Wyoming.

A second alternative would completely eliminate the Absaroka area from protection and reduce the Beartooth side to a wilderness of 298,000 acres. This would limit protection only to the high rugged peak area and not include the Wyoming lake basin.

According to its plans, the USFS would develop motor-scooter trails and other recreational developments such as campgrounds in the present wild areas under this small wilderness proposal.

Conservationists have reacted to developer pressure, including that of the USFS, with angry cries. They have gone on record generally in favor of the largest wilderness alternative offered by the U.S. Forest Service, but with additional lands added along Slough Creek and in a few other spots. They feel that the provision for creating a wilderness corridor between the Beartooth and Absaroka is highly undesirable and argue that roads would cause overuse, disrupt the environment and ecosystems of the area and endanger wildlife. As far as tourism is concerned, conservationists agree that there is already access to the Beartooth and Yellowstone Park via Red Lodge and that another road is unneeded.

"The Forest Service is spread thin now," stated Don Allen, president of the Billings-based Beartooth Chapter of Trout Unlimited. "Unless they are provided with means to administer, they cannot be expected to do so." He also warned that additional roads would create a need to control the numbers of people using the area to protect fish and the fragile alpine terrain of the region.

Dave Hummel, Sierra Club representative in the Billings area, stated at the USFS hearings that business would actually benefit from wilderness since people live in Billings because the wild area is close by. This chord seems to have rung true for other Billings businessmen. A Billings Chamber of Commerce resolution supported "as large a wilderness area as possible."

Other groups, including the Audubon Society, Wilderness Society, Trout Unlimited, Montana Wildlife Federation, Billings Rod and Gun Club and Wyoming Outdoor Coordinating Council, have gone on record in support of wilderness classification—in most cases exceeding even that proposed by the USFS in its most expansive alternative.

Even the National Park Service (NPS) has come out in favor of the wilderness. NPS resource manager Ted Bucknall asked at the November USFS hearing for a wilderness extending to the headwaters of Slough Creek if possible in order to help the park keep its waters clean.

Slough Creek flows into the park and Bucknall said the NPS is concerned lest the cutthroat trout of the stream be destroyed. He also added that it was "ridiculous to put a road through to Boulder River just to reduce the traffic in the park."

Other conservationists have asked that the study area be expanded to include the north side of the Absaroka Range which has been left out because of a requirement that the U.S. Geological Survey do a mineral study on all land being considered for wilderness. The Geological Survey has not had time to complete an evaluation of this part of the Absaroka area.

Now it is up to the U.S. Forest Service and the public. The citizens who are fighting for wilderness classification have two more opportunities to make their feelings known; public hearings must be held before Congress makes its final decision.

Robert Miller (in charge of the U.S. Forest Service study) and his co-workers are spending the winter reviewing recommendations made by the public during last November's hearings. They will make a specific recommendation in brochure form this spring.

This recommendation will then be debated in public hearings held the fall of 1972, after which a final USFS recommendation will be forwarded to Congress via the Secretary of Agriculture in time to meet the 1974 deadline required by the Wilderness Act of 1964.

Congress will then hold another series of hearings and, perhaps, introduce legislation to create a Beartooth——Absaroka wilderness area. Its decision will depend on the support this proposal receives from wilderness supporters, both at the hearings and through letters to individual Congressmen.

Only Congress can set aside public lands as wilderness—but the general public can make Congress aware of the significance of leaving one of America's last remaining wildernesses untouched.

Should we

TWO ANSWERS TO

Benjamin F. Wake, Administrator
Department of Environmental Sciences
Department of Health and
Environmental Sciences

NO

It is inconsistent to ask industry to clean up or to ask citizens not to burn leaves and still allow federal burning of slash."

This remark was made by Mrs. Virginia Mann, then chairman of the State Board of Health, at a meeting held last year to discuss problems relating to open burning on federal lands in Montana. Attending the session, held July 8, 1971, in Helena, were representatives from the Environmental Protection Agency, the Departments of Agriculture, Interior and Defense, and the State of Montana.

Slash burning on federal, state and private lands in Montana has remained a source of substantial air pollution despite the regulations of the state's Clean Air Act, which came into being on July 1, 1967. Effective control procedures have been carried out on dozens of previously uncontrolled sources of air pollution throughout the state. However, slash burning continues to hamper the state's overall air pollution control effort.

The magnitude of the problem prompted the Division of Air Pollution Control of the State Department of Health to request the inter-agency meeting last July. Four classes of problems related to open burning were discussed, each one differing to some degree:

a. Slash disposal resulting from forest harvesting operations.
b. Forest management practices, seed bed preparation, pest control, etc.
c. Public works projects—reservoir land clearing, right-of-way clearing, etc.
d. Public work maintenance operations—drift disposal, storm damage debris, etc.

It was hoped that the meeting could result in the formulation of a national policy, since open burning has reached a critical point in Montana. National guidance and participation is needed. In addition, the Montana State Board of Health wants a firm commitment from all governmental organizations in the state to present reduced emission programs by June 30, 1973. The board has passed a resolution to ultimately eliminate the burning of slash in Montana.

It is well recognized by the Board of Health and the Air Pollution Control Division of the Department of Health that a considerable amount of effort has been made by the U.S. Forest Service and other federal agencies to minimize air pollution from slash burning and that there may be compelling reasons in forest management to continue burning—perhaps

"Slash burning continues to hamper the state's overall air pollution control effort."

burn slash?

COMMON QUESTION

(F&G photo by Bill Schneider)

"Slash burning is an essential part of forest management."

YES

Robert Morgan, Supervisor
Helena National Forest
U.S. Forest Service

As with some other practices traditionally practiced in Montana's public and private forests, slash burning is being viewed with increasing disfavor—and understandably so. The public wants clean air, and the law says the public will have clean air.

It is also understandable that those charged with the administration of pollution regulations feel a real crunch—the public fervor for clean air on one side, and, on the other, agencies, industry, and landowners that say slash burning is a necessary part of forest management and that no completely suitable alternative exists.

Today, both of these statments are true. Hopefully, they will not be entirely true tomorrow.

Forest managers will readily acknowledge that some unnecessary burning has taken place and that faster progress should have been made in the search for alternatives. Let's dispel the notion, however, that slash burners are unconcerned with the problem or that they *like* to burn slash. They don't. It is a dirty, risky all-hours job. It takes careful planning, time, and scarce manpower and money.

This short article is not an argument for continual large-scale slash burning. It is a short review of the facts as they exist today.

Fire cannot be divorced from forest management. The age, species composition and associated plant and animal life of any Montana forest resulted from (or, at least were greatly influenced by) fire at some time in the past.

In Montana's temperate climate, forest debris, both natural and man-made, accumulates faster than it decomposes. Thus the cycle of fuel buildup and subsequent disposal by fire is repeated throughout history. This cycle is not susceptible to regulation by law.

After removing some of the accumlating fuel as wood products (logging), forest managers use slash burning to emulate one step in Nature's method of reforestation.

Today, we should be realistic. Whether it be right or wrong, there remains the formidable job of handling recent years' slash accumulation and its negative impact on wildlife, aesthetics and other resource values. Also, the fire risk slash creates cannot long be tolerated. Much of this accumulation lies on terrain too steep or too rough for mechanical disposal.

Although progress is being made, a completely suitable mechanical disposal system has not been developed. Chipping slash for conversion to useable products and removal for fuel

NO

even on a larger scale. However, this does not solve the problem. According to U.S. Forest Service records, 69,500 acres were slated for burning in Montana during the 1971 burning season. Consequently, several thousand square miles of land were covered with smoke and distillation products of wood, creating a tremendous amount of air pollution.

Because of the scope and nature of this problem, its importance in the development and continuation of an effective air pollution control program in Montana and the public interest and concern in this area, we believe a more detailed documentation of the environmental aspects of slash burning is in order. The long-term disposal of hundreds of thousands of tons of organic material is of great interest to the State Department of Health, since the proper handling of these wastes is vital to maintaining the environmental quality.

Montana has been a symbol of the vastness and uniqueness of this country for generations. It has been one of the first priorities of the Division of Air Pollution to restore air quality where it has been degraded and to prevent unnecessary degradation of air quality where it is already better than the air quality standards.

The feeling is coming to me that the resolve of the individual citizen to secure and maintain clean air is being systematically worn away by continued threats of economic blackmail and distorted values. The time has come for all who value the heritage of man on this earth to back up their belief with personal commitment. While each individual is only one, he is one, and can make the difference between action now or more months or years of idle talk and fearful speculation.

Benjamin F. Wake

YES

in power generation are two possible alternates for slash burning presently being investigated.

Probably the most significant progress towards the reduction of slash burning now and during the next few years will be the utilization of more of the harvested tree, which, in turn, will lessen slash accumulation.

In the meantime, we can eliminate unnecessary burning. We can adopt mechanical methods as they become technically and economically feasible. We can alter the burning season to take advantage of favorable smoke dispersal conditions.

Nonetheless, there is no reasonable alternative to some slash disposal by fire—today or in the near future.

Robert S Morgan

EDITOR'S NOTE: Robert Morgan, 49, is the supervisor of the Helena National Forest. He has spent 27 years with the U.S. Forest Service and has his B.S. degree from the University of Montana, Missoula, in Forestry. He has worked as a forest ranger, regional training and safety officer and as a smoke jumper for the service. Morgan is on the Board of Directors of the Montana Wilderness Association and the Montana Conservation Council.

EDITOR'S NOTE—Benjamin F. Wake, 46, heads the Department of Environmental Sciences, a division of the newly reorganized Department of Health and Environmental Sciences (formerly the State Department of Health). He received a Bachelor of Science degree in civil engineering from the University of Colorado, Boulder in 1950 and a Master of Public Health degree from the University of Pittsburgh in 1955. Mr. Wake is an active member of the National Air Pollution Control Technology Advisory Committee, the Air Pollution Control Association and the American Conference of Government Industrial Hygienists.

MONTANA FLORA

AND WHAT IT MEANS TO WILDLIFE

Curleaf Mountain Mahogany

Curleaf mountain mahogany is one of two species of mahogany found in Montana. It is a member of the rose family, has a reddish-brown bark and is common along dry, rocky slopes.

Both mahogany plants are important winter food for mule deer. The presence of these browse plants indicates a healthy deer range and a stable deer population.

—Harley Yeager

book reviews

FISHES OF MONTANA, by Dr. C. J. D. Brown, Big Sky Books, Montana State University Bozeman, 1971; paperback, $4.50.

Fishes of Montana is a very well-written key to, and description of, each species of fish found in the Big Sky State. This volume is especially welcome to Montana fishery workers because they can now retire their Wyoming, Kansas, Washington and other traveling-companion fish keys to the reference shelf. This one volume covers every fish likely to be found during field work.

It is regrettable that the printer of this book did not do as excellent a job as the author. While the fragile paper binding will present no problem to those who keep their volume at home, it is totally inadequate for a book that is to be a traveling companion. Any fishery worker who doesn't have his copy either rebound or stapled will soon find pages slipping out at random.

In addition to keys and descriptions, the distribution of each species is illustrated on a map of Montana. Each species' natural range on this continent, its spawning time and activity, its lengths at different ages, and its food habits are also given. Descriptions of many of the game species include remarks on their edibility and some of their management problems. The keys are nicely arranged and troublesome key characteristics are well illustrated. These points, plus excellent black and white photographs of each species, make the key very convenient, particularly for those accustomed to using biological keys.

A glossary of terms and a section on use of the keys provide helpful refreshers for the professional and may also aid the serious layman in identification of his catch. However, the person who is unwilling to learn new tems such as "pharyngeal teeth" and who doesn't cut those structures out of a fish and count them will not be able to identify some of the more difficult species.

Although the photographs are excellent, they and the keys do not constitute a quick visual identification system for fish such as Roger Tory Peterson's "Guides" do for birds. It does not represent any failure on the part of the author, but rather an illustration of the fact that fish taxonomists have depended far more on structural characteristics than have bird taxonomists.

This reflects basic differences in members of the two phyla. In birds, colors are frequently bright and usually consistent and long-lasting. Fish, on the other hand, are also often brightly colored but are notorious for their color inconsistencies. Fish will vary in color between individuals of the same species in different drainages and even the same individuals will show color changes at different times. It is little wonder that ornithologists have been able to devise quick visual characteristics for bird watchers while ichthyologists must still tell the angler he has to "cut and count" to properly identify his catch.

Although the keys will be tough going for most laymen, I believe this book would be a welcome addition to the library of most Montana fishermen. The special sections and maps on Montana rivers, lakes, reservoirs and major drainages, plus

MOVING?

If you're planning to move in the near future, please fill out this blank and send it to MONTANA OUTDOORS, Fish and Game Department, Helena, Montana 59601.

FORMER ADDRESS:
name .....
address .....
city ..... state ..... zip .....

NEW ADDRESS:
name .....
address .....
city ..... state ..... zip .....

the fish life history descriptions, are certainly of wide general interest to fishermen. Common questions such as "How many eggs does a walleye lay?", "About how old is a 4-foot paddlefish?", "When do burbot spawn?" and many, many more are all answered in *Fishes of Montana*. It is a book well worth considering as a present for your angler friend.

—*Art Whitney*

EDITOR'S NOTE: Most book reviewers featured in this section are department employes. However, since *Game Management in Montana* was published by the department, I asked Daniel A. Poole, president of the Wildlife Management Institute, to give me a professional, but non-department, review of our game division's publication.

GAME MANAGEMENT IN MONTANA, edited by Thomas W. Mussehl and F. W. Howell, published by the Montana Fish and Game Department, Helena, 1971, 238 pages, no price listed.

This new and attractively illustrated publication packages its subject with the zeal expected of Big Sky country. This is as it should be because Montana's past, present and future are all linked with its natural resources — its water, forests, wildlife, fish and range — its environment.

Abuse one of these elements and others suffer. That is the truth of ecology (the relationship of living things, to its own kind and to other), and that has been the lesson painfully learned by wildlife and nature enthusiasts everywhere. That is also the essential message of this informative publication.

Man knows how to assure a sound future for wildlife in the United States. This country is the world's dominant nation in the development and application of wildlife management principles and techniques and that profession continues to add new knowledge and capabilities for a better and more responsible job.

Montana's wildlife has had its bad times, for reasons duplicated in other states. Early abuses, indifference and ignorance decreased some species and eliminated them entirely in places. The public realized something must be done and the wildlife management profession developed. The remarkable wildlife restoration in Montana and other states has echoed the wisdom of this growth.

Today, the sport hunter poses no threat to wildlife's future. The threat comes from unarmed man. He takes the forest, range and water and diverts them to his uses, fouling them with his wastes and technology. He reduces and destroys the habitat needed by wildlife.

If one can mildly fault this publication, it is for its emphasis on game instead of wildlife and on harvest instead of nature enjoyment and human recreation. These are understandable orientations because this is a book on "game management" and it is the sportsman's dollar that has paid, and continues to pay, the bills for restoring and maintaining wildlife. The crocodile tears of the uninformed, and the emotionalists pay no bills. Today society, and that includes the thinking sportsman, is interested in all wildlife, not just those species that may be hunted legally at the moment.

This book is for all Montanans. It traces a significant part of their heritage and should give them pride. They have encouraged and made possible the restoration and maintenance of much of the state's incomparable wildlife bounty. It should give doubters, if any still remain, an understanding of and confidence in the essential mission of their Fish and Game Department. It is admirably suited for both purposes.

—*Daniel A. Poole*

BEN HUNT'S BIG BOOK OF WHITTLING, by W. Ben Hunt, The Bruce Publishing Company, New York.

"Whittlin' relaxes me," almost anyone who does it will comment. But whittling is more than a tranquilizer, and more than making shavings from a piece of wood. It is a highly skilled craft and one of the oldest known to man. Marvelous works of art have been produced by whittling, a peculiarly American term for carving done with a knife rather than other carving tools.

Whittling is an inexpensive, clean hobby. The necessary materials cost little and any quiet corner will do as a workshop. All that is needed is a good knife, an oilstone or whetstone, a good piece of wood and an idea.

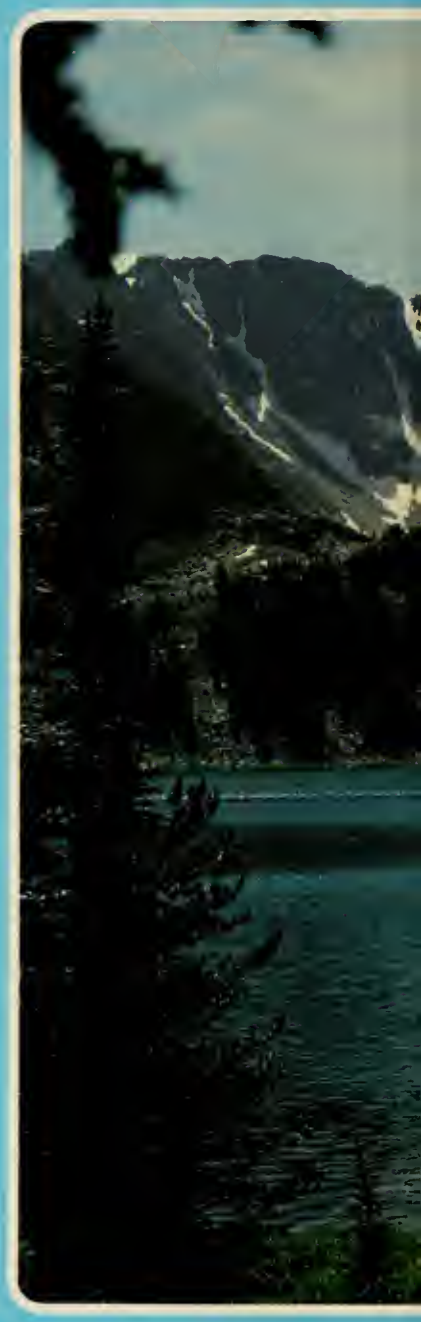
Ben Hunt's Big Book of Whittling is not just a handbook for beginners. It contains ideas, patterns and helpful hints for the advanced carver as well. From an elementary discussion on different types of knives and how to sharpen them to complicated patterns and designs for the advanced craftsman, the book is a delight because of its clarity and simplicity.

Safety is also a serious consideration. The author uses words and drawings to describe the proper way to hold and use the knife for different designs.

In this modern plastic world where creativity is often stifled, there is an opportunity to learn a basic craft. This book gives the reader a chance to enjoy the feel and smell of raw, clean wood, to learn to distinguish one wood from another and to experience the joy of creating something useful or decorative —something uniquely his own.

—*Joyce MacDuffie*

THE COVER STORY



Man may never fully taste the true savor of this great land.

THE BEAR'S TOOTH

by Ruth M. Koch

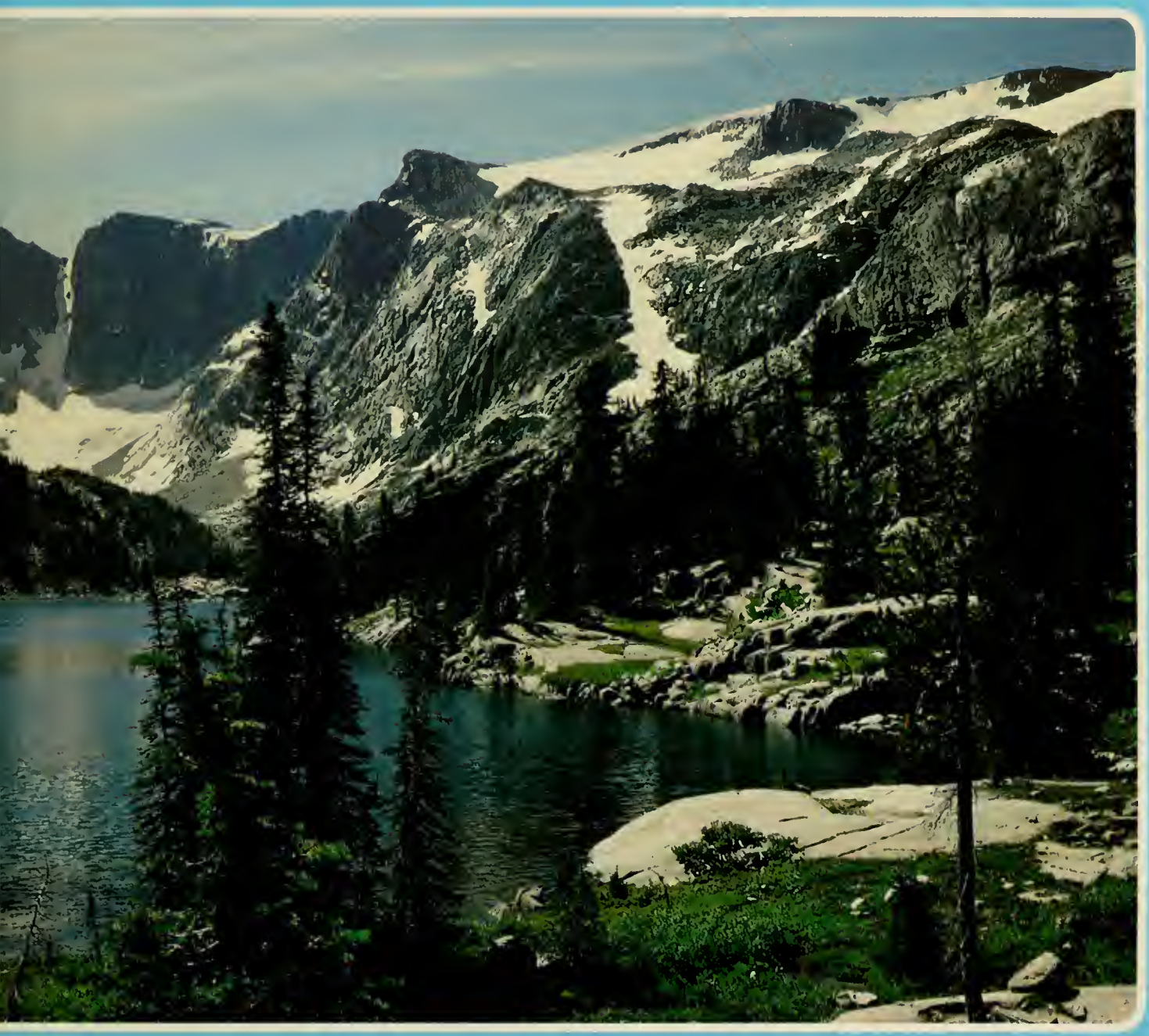
The Indians called it Nah-Pit-Sei, the Bear's Tooth. Nah-Pit-Sei (Nah-Peet-Say) is a jagged fang high on the flank of 12,000-foot Beartooth Mountain (pictured on the cover) which rises from the backbone of a massive uplift of ancient metamorphic rock. This uplift, the Beartooth Block, likewise takes its name from the rock-tusked mountain.

The Beartooth country is a high and rugged land, honed and gouged by glaciers after it was lifted up as a huge block in pre-ice age earth movements along the western edge of the Big Horn Basin, southwest of Billings.

Historically, this was Indian treaty land, reserved for the use of the Crow Nation by the grace of the Great White Father. Prehistorically, it belonged to the Indians by tradition and use. They did not live on its austere heights, any more than man does today, but the sky-high land bears the mark of their culture. Hunting campsites, tepee rings, bones and artifacts indicate that Indians hunted sheep in these highlands long before the white man deeded it to them by treaty.

This land does not belong to man, neither Indian nor white. By virtue of its rigorous nature, it is its own. Man, through some innate understanding, does not gainsay this fact. He ventures into its fastness mostly in the short season when summer's sun softens the severity of its windy and stormy heights. The warmth of the direct summer sun allows a brief respite in which to savor the land's true character in some of its milder moments.

Man may give the Beartooth a casual looking over from the safe and comfortable limits of a fishing or camping trip into the mild and roaded portions of



Only one small example of the scenic grandeur found throughout the Beartooth Country. (photo by Ruth Koch)

the valleys of the north or a quick wheeling trip along U.S. 212 between Red Lodge, Mont. and Cooke City, Mont. From these relative securities, man cannot, however, fully taste the true savor of this great land.

To know the Beartooth one must feel it with his feet. He must walk it, climb it, hefting the grossness of his body by sheer leg power up its lung-splitting rises, tread the sparse tundra carpet of the alpine mea-

Whoever thought of the word, "wild", must have been describing the Beartooth Country.

dows and roam the boulder strewn, sky-topped heights. In this basic bond of land and man, one can share the Beartooth with its natural inhabitants as they go about their unrelenting business of life—the native sheep, the eagle, the mountain rodents, the summer finches and tundra birds and the Rocky Mountain goat which also thrives because of a Fish and Game Department transplant.

the wildlife

The native sheep, the soaring eagle and the raven are the symbols of this country's wildness. Perhaps, the Great Bear was there too, as it was on the plains below at the earliest advent of the white man. Man's presence in the Beartooth forces the great predator to retreat far to the southwest in Yellowstone Park as if to contain him there by legislative order, like the Indian on his reservation.

Today, the Great Bear occasionally wanders forth from that retreat to roam the alpine meadows of this high country. The Craighead brothers' study of Yellowstone bears proved by radio check that the grizzly wanders into the Beartooth Country. Actual sightings on the north side of the mountains have been made by Billings residents within the past 15 years. But the grizzly is now only a sometime visitor in the Beartooth. However, Nah-Pit-Sei's jagged fang (the Bear's Tooth) remains as evidence the Indians knew the bear well in earlier days.

The native Bighorn sheep roams the high tundra-like plateaus of the Beartooth today as it did in Indian times. It still lures hunters into arduous treks to the highlands in search of trophy heads. Casual plateau visitors are aware of the presence of this most elusive of high country animals mostly by tracks, droppings, an occasional weather-whitened skull or perhaps a rare fleeting glimpse of buffy rumps disappearing at a distance.

The golden eagle nests on the jagged cliff walls of the ice-carved canyons and hunts the high plateaus for the hardy rodents that reside there permanently. This bird has also retreated before man's invasion of the valley bottoms, though occasionally it is still seen in there. Although not nearly as common as the golden, the bald eagle also occasionally occurs here.

The raven gave its name, "Absaroka," to the Indians. It was then jargonized by the white man into "Crow," which is the name the tribe carries today. The raven, of all the free, wild creatures which symbolize this land, has made its peace with man's encroachment into the lower valleys of the Beartooth. Its flapping and soaring flight and raucous call are familiar to any who have camped or fished even at low elevations. The bird lives in fearless proximity to man, taking his cast-off scraps as benefaction.

climatic severity

This is not a land for easy living. Its severity approaches that of the Arctic Circle. To live here would divert too much of man's attention to basic physical needs. Only in the short summer season is there enough freedom from the body's fundamental demands to allow full appreciation of the land's awesome beauty.

This beauty can be a blooming wildflower or a harshness which can test the strongest of body and spirit should man meet its full and sudden challenge. Even in the summer's milder times this harshness is only thinly veiled. Sudden storms can bring chilling winds, blinding clouds, driving snow and dropping temperatures to quickly turn a summer day into an elemental struggle with exposure and hypothermia. Froze-to-Death Plateau and Mountain get their names from a tale of Indian lore which recounts how hunting braves became storm trapped and snowbound atop the lofty plateau and forfeited their lives to the misfortune.

Fortune may be no kinder to man in any season today. Climbers of Granite Peak, Montana's highest point (12,799 feet), are more often defeated by weather's stormy wildness than by the mountain's rocky faces. Those who have had the luck of good weather might find it difficult to believe how unpredictably demanding the heights of the Beartooth can be. One Billings climber of long and varied climbing experience has been turned back four out of eight mid-summer attempts.

In addition to snow, sleet, wind and cold, summer sometimes throws up yet another barrier to the quest of Granite Peak—the violence of hair-raising electrical storms. A summer electric storm with its thunderous lightning bolts and the crackling tension of electrified air can be, if anything, a more adrenalin-charging opponent than winter's howling winds and the silent stealth of cold. The popular aluminum backframe loses popularity as one feels his scalp tighten with electrical charges that shimmer across the sweeping stretches of exposed plateaus. Here man is not only a visitor, but a hasty one, and sometimes even a prone one.

Courting winter's force is a demanding challenge of more than casual nature, not to be lightly undertaken.

The strenuous and futile treks of a group of young college mountaineers attempting Christmas assaults on Granite Peak attest to the violence with which the Beartooth can guard its winter wilderness. On two successive years (1969-70) storms turned them back before they could even begin the climb

of the mountain itself. They were strong young climbers, easily equal to the not-so-difficult technicalities of climbing Granite. They found that getting to the mountain proved to be a greater test of endurance and stamina than the actual climb. Twice, they felt their energy sapped to the point where they had to retreat to lesser heights and lesser winds, leaving the mountain to itself in its majestic storm-bound solitude.

A tragic death along the Beartooth Highway in the winter of 1971 of a member of a snowmobile party must stand as a here-in-after warning to anyone who would venture into the winter fastness of the lofty Beartooth. Man is the intruder here. He must reckon with the land on its own terms.

Yet peaceful serenity often spreads across these same rocky heights. On rare days when valley fog rolls in from the plains and fill all the canyon depths, one seems utterly immersed in a benign tranquility as he wanders along the sun-drenched islands of tundra and rock projecting above the foggy sea. When it will, the Beartooth smiles.

topography

The topography of the Beartooth resulted mainly from two geologic forces—the uplift of a massive block of rock some 80 miles long and 35 miles across and the force of glaciation on that uplifted rock.

Two general types of ice action shaped the uplift—the continental ice shield type on the south and the alpine type on the north of a crestline running from southeast to northwest.

This crestline is the roof top of Montana, a ridge approximately 40 miles long with more than a dozen peaks above 12,000 feet, among them Granite Peak. The lowest point on this lofty ridge is just under 10,000 feet.

the plateau land

Here is the biggest view in all Montana, the highest mountains under the whole Big Sky, the Beartooth plateau country. This high plateau land is the most unique feature of the Beartooth and nowhere else in our nation is there such an extent of land above the 10,000-foot elevation.

Perennial snow fields on these high plateaus hold and slowly release the winter's drifted snows, providing an almost steady flow in the white-watered streams below. Most of the cirqued alpine valleys have remnant glaciers still living, adding to the controlled flow of water from this huge uplifted block. Several of these glaciers have trapped windblown flights of grasshoppers which are still entombed in the ice. The best known of these is the Grasshopper Glacier in the headwaters of West Rosebud Creek just southwest of Granite Peak. An old mining road of strictly four-wheel drive classification from Cooke City, Mt. to Goose Lake makes this particular example of grasshopper entombment roughly accessible to those willing to trek two miles beyond Goose Lake and over a 10,000-foot pass.

the beartooth in bloom

The Beartooth in its blooming season has a wide range of wild flowers because of the elevation spread from valley bottom to high plateau. The valleys glow in early spring with yellow balsamroot and then with pale crocus and blue lupine. The rare wood (red) lily frequents the moist valley bottoms up to 6,000 feet and is in danger because people pick the blossoms and thus unwittingly prevent seed production.

However, the most interesting of the Beartooth flowers occur at high altitude. On the high plateaus, alpine and sub-arctic flowers all hurry to bloom in the short growing period.

These alpine flowers are dwarfed and delicate (some only an inch in height) because of the slow rate of growth. Dr. Norman Schoenthal, Professor of Biology at Eastern Montana College, Billings, says that the productivity rate at these altitudes is so low that the casual uprooting by heel, hoof or wheel of a plant only one or two inches in height may be the destruction of 150-200 years of life. For example, willows, which at low elevations grow moose-high, are only a sparsely matted ground cover on the high plateaus.

The casual wheel traveller on the Beartooth Highway will never notice the most exclusively characteristic flower of the plateau land — the greenish-white Arctic Gentian. Modern speed does not allow the scrutiny needed to reveal it. But if one pauses in late summer to tread carefully on the alpine mat, he may see it crouching in the tundra along that road in clumps of 4-6 pale tube-like blossoms tinged with purple streaks.

At Beartooth Summit (along the Beartooth Highway) in middle to late July, one may be favored to find the rarest of all alpine flowers, Little Lewisia, the pygmy Bitterroot, a tiny, 6-7 petalled pink blossom barely a quarter inch across. Unlike the larger Bitterroot (Montana's state flower) of lower elevations, the leaves and blooms of Little Lewisia appear together. These midget flowers are indeed the most elusive of all alpine wildflowers, blooming only for a 3-4-hour period through the zenith of the day. It is only a chance encounter one might have with Little Lewisia unless one makes a mission of hunting it out and waiting on its time of pleasure. Many pass it by, not knowing. However, the mountain rodents do not. Its small root is succulent fare for them and even for the mighty grizzly should its wanderings bring it to the plateau.

This land does not belong to man, neither Indian nor white. By its rigorous nature, it is its own.

The pygmy bitterroot or Little Lewisa is the crown jewel of all Beartooth wildflowers. This minute version of Montana's state flower grows above 9,000 feet and blooms for only a few hours on a single day. (photo by Ruth Koch)

This is Montana's roof top, the Beartooth Country. Its ruggedness and majestic heights cannot be equalled anywhere in the Treasure State. This land of cloud-high plateaus, white water streams, jagged peaks, mirror-like lakes and breath-taking canyons is truly a wilderness and should be protected from the encroachment of modern civilization. (photo by Ruth Koch)

access

Though it is a huge undeveloped block of rugged mountainous upland, the Beartooth is easily accessible from all directions. With one exception (Lake Fork of Rock Creek), each stream on the north affords deep penetration into the alpine valleys with developed campsites at road heads. Trails follow all these canyons beyond the road heads, giving access to the depths of the Beartooth country from the north side.

Along the south side the continental ice shield country is reached from the Beartooth Highway (U.S. 212) by means of numerous trails which lead into the zig-zag drainages of the old ice field.

On the southwest, dubious jeep roads lead from Cooke City into old mining country. The roads provide access to trails that lead not only to the head of the ice shield country but into the upper reaches of the Boulder River on the west and the Stillwater and West Rosebud in the heart of the Beartooth under the shadow of Granite Peak.

Aside from easily accessible areas, there is plenty of land left to explore in natural trailless challenges. Here anyone can find, as if for himself alone, the high lonesome topland, the myriads of seldom-seen lakes and hanging valleys, the remnant glaciers and the beckoning peaks. The Beartooth can be this forever, if man will choose to keep it so.

the fate of the beartooth

The north edge of the Beartooth has recently been threatened with the destructiveness of mineral extraction. Many have the false impression that the whole Beartooth is endangered.

The actual and fortuitous fact, however, is that the mineralization is peripheral to the mighty uplift itself. The bulk of the Beartooth is still a wild and unspoiled land.

The well-publicized Stillwater Complex, a lens-shaped mineral deposit, lies along the north edge of the Beartooth Block. It forms a sandwich-like filling between the ancient Beartooth rocks and layered rocks of a later geologic age.

The extraction of this sandwich-filling will undoubtedly greatly influence and change the appearance of the north slope of the Beartooth. But more important, it will influence the environment of the Stillwater River system below the proposed mining. This will pose control and regulation problems with regard to its effects on downstream areas, but it will have little direct effect on the wilderness potential of the Beartooth heartland. This is a geologic fortuity for which we in Montana can be as grateful as for the mineral resources of the complex itself.

Both minerals and wilderness are parts of Montana's treasure of natural resources. Too often they encroach upon each other and because of their mutual exclusiveness pose irreconcilable value choices. Here, however, the two resources lie in almost unmixed but precarious juxtaposition, allowing each to be harvested with proper consideration for protecting the surroundings.

The uplift of Precambrian metamorphic rocks which forms the core of the Beartooth is primarily without significant mineralization. At 9th Annual Field Conference of the Billings Geological Society, Dr. Richard M. Foose, a major authority on Beartooth geology, said, "Significant mineralization both along the borders and within the Beartooth Block itself is apparently lacking."

Other mineralized areas encroach on the southwestern edge of the Beartooth Block near Cooke City. The wilderness quality of the mineralized sections themselves has already been destroyed by historic mining activity. Great care will be needed from all concerned to preserve the environmental quality of this exceptional area.

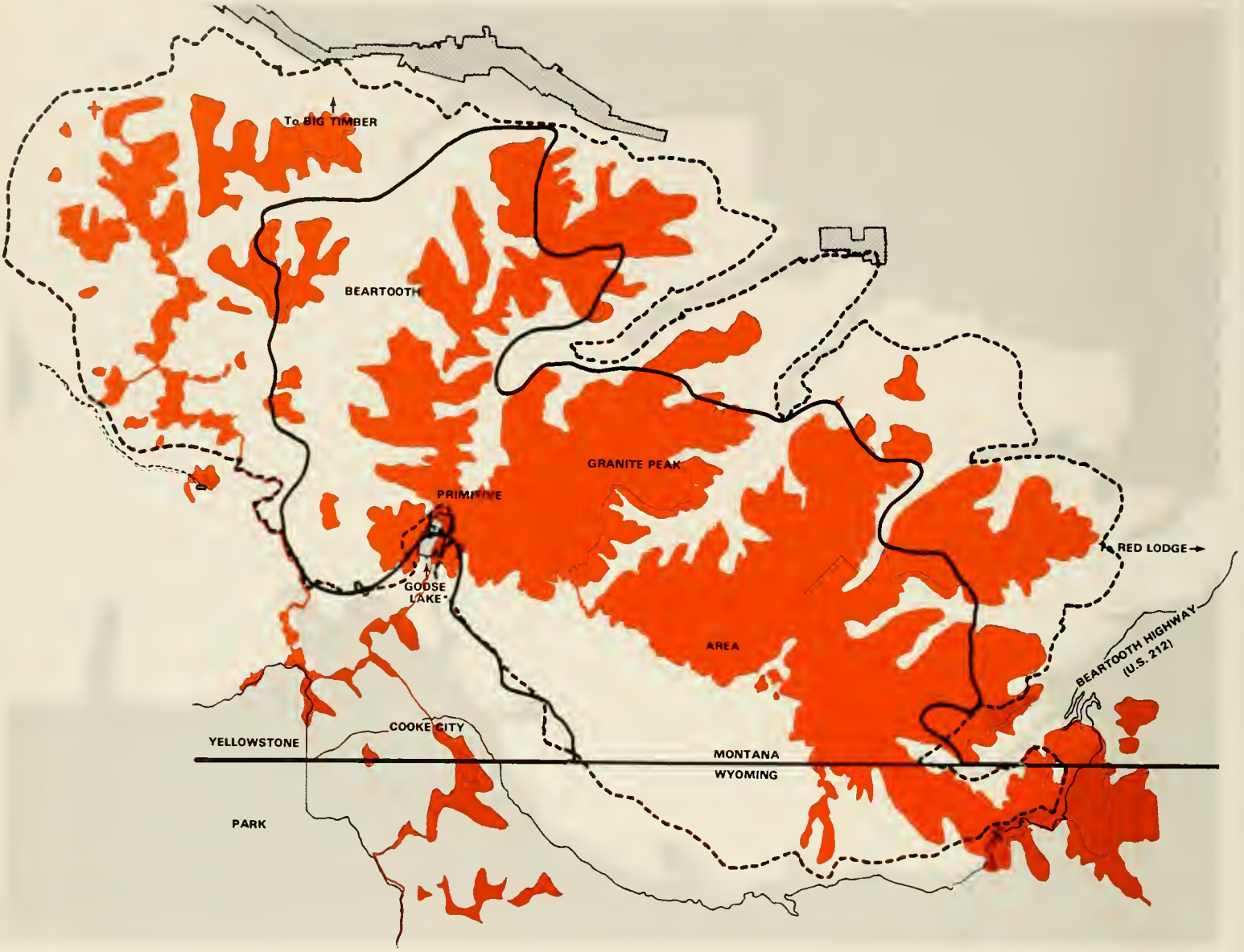
our decision

Hemmed in on the north and southwest by extraction of minerals for man's use, cut to the southeast by man's yearning for high speed go-going, pressed on every flank by his insistence upon quick and easy fun and mass-type pleasure, the Beartooth lies there amidst it all. Around it swirl the currents and eddys of a "time of decision", a time when man in his arrogated dominion will decide what sort of use pattern he will impose upon this cloud-high land of plateau, peak and breath-taking canyon.

Will it be left as history has passed it by, unmarked and unfenced, natural and untrammelled? Will it remain a land for rare moments of appreciation? Will it be left for the next visitor who comes to feel its special quality? Or will it be further divided up for man-made purposes, laced with asphalt lanes for man's fast-moving devices, carved and shaped into particulated patchworks artfully rearranged for man's self-oriented objectives?

Now we will choose according to the values we would pass on, whether we consciously recognize them or not. Now we will decide what might never

EDITOR'S NOTE: Mrs. Ruth M. Koch has worked for five years toward obtaining a wilderness classification for Montana's Beartooth Primitive Area. She is a member of the Montana Wilderness Association and chairman of that organization's Beartooth Reclassification Study Committee. Now 59, Mrs. Koch backpacks an average of 150 miles every summer and has covered much of the Beartooth on foot. In addition, she is proficient at wilderness and wildflower photography. Her background includes a Bachelor or Arts degree in philosophy from the University of Illinois, Champaign.



AREA OVER 10,000 FEET—Nowhere in the United States is there so much land area over 10,000 feet as there is in the Beartooth Country.
PROPOSED WILDERNESS—These dimensions are proposed by the Montana Wilderness Association.
MAN'S ENCROACHMENT—This illustrates man's inroads into the wilderness. Notice that most of the area not in solid black is proposed wilderness.
MINING—These areas have already been mined and thus disqualified for wilderness classification.
PRIMITIVE AREA—The Beartooth Primitive Area as it stands today. Note that the proposed wilderness would increase the size of this wild area.

THE BEAR'S TOOTH continued

again be possible to un-decide or re-decide.

Only recently have we come to realize that wilderness cannot remain a conditioning influence in man's life without man's purposeful intent to keep it so. De facto wilderness is fastly disappearing. This great Beartooth country can resist, better than most lands, man's rampant alteration of his surrounding conditions. But it too can fall to man's manipulations.

Just lately in our history have we become aware that only through the unlikely quality of self-restraint can man ever save viable evidence of the natural conditions from which he emerged—his wilderness heritage. Unless he now takes heed, it may pass into the oblivion of the past and be lost forever.

The Other Half

. . . A Woman's Look at Conservation by Louise Fenner

YOU MUST BE KIDDING

Can smog make you beautiful? This was an argument at Montana's First Constitutional Convention in 1889. William A. Clark, one of the "copper kings," declared that the air pollution of Butte, Mont., was a valuable cosmetic aid to the city's female inhabitants.

According to the *Proceedings and Debates of the Constitutional Convention,* he said: "I must say that the ladies are very fond of this smoky city, as it is sometimes called, because there is just enough arsenic there to give them a beautiful complexion, and that is the reason the ladies of Butte are renowned wherever they go for their beautiful complexions . . ."

Not only that, Clark expounded on the medicinal benefits of air pollution: "Now, talking about this smoke, I believe there are times when there is smoke settling over the city, but I say it would be a great deal better for other cities in the territory if they had more smoke and less diphtheria and other diseases. It has been believed by all the physicians of Butte that the smoke that sometimes prevails there is a disinfectant, and destroys the microbes that constitute the germs of disease . . . it would be a great advantage for other cities, to have a little more smoke and business activity and less disease . . ."

(cough.)

—National Wildlife Federation

WORTH REMEMBERING

"For the average middle-class American family living in an urban area, abating air pollution is the single most important thing we could do to improve health. If we could reduce air pollution by 50 per cent, it would save nearly as much in money and lives as if we found a complete cure for cancer."

These are the comments of Dr. Lester B. Lave, a Pittsburgh economist who with a colleague, Eugene P. Seskin, recently made a study of urban air pollution. They found that if air pollution was cut by 50 per cent in major cities: 1) a newborn baby would have an additional 3-5 years life expectancy; 2) deaths from lung cancer, and in fact all lung disease, would be cut by 25 per cent; 3) death and disease from heart and blood vessel disorders might be cut by 10-15 per cent; 4) all disease and death would be reduced by 4.5 per cent yearly, and the annual savings to the nation would be at least $2 billion.

—Conservation News

SOMETHING FOR THE COOK

WILD MEAT PIE

1 lb. meat (approximately): pigeon, grouse, pheasant, rabbit or squirrel
1 can peas
1½ cups diced carrots
1½ cups diced potatoes
1 medium onion, chopped
1 tsp. salt
Pepper to taste
1 recipe biscuit dough

Soak meat overnight in salt water. If a little soda is added to the water, it will help sweeten the meat and take out any "gutty" taste. (Use about 1 tsp. salt and 1 tsp. soda.)

Boil meat until it comes off the bones—a young animal will take less time than an older one. Remove bones and pour the remaining liquid into a deep pan or casserole dish. Meat can be floured lightly and browned in bacon grease in a frying pan if desired (I like it that way). Add meat, salt, pepper, carrots, potatoes and onions to casserole and mix. If a thicker mixture is desired, a small amount of flour or tapioca can be added.

Roll out biscuit dough and cut as for regular biscuits: place biscuits on top of meat mixture. Brush tops of biscuits lightly with melted butter, then bake pie in a 350 degree oven for 30 minutes.

Jim Ford
Missoula, Mt.

ELEPHANT STEW

(For cooks who like to surprise their families with something new.)

"As an old-timer . . . , I have gone on to bigger things and thought you might appreciate a recipe from this big game country:

Ingredients

1 elephant
salt and pepper
2 rabbits (optional)

Cut elephant into small, bite-size pieces. This should take about two months. Add enough brown gravy to cover. Cook over kerosene fire for about four weeks at 465 degrees. This will serve 3,800 people. If more are expected, two rabbits may be added, but do this only if necessary as most people do not like to find hare in their stew."

Bob Casebeer
Wildlife Biologist
Nairobi, Kenya, Africa

The Endangered Hunter

Sad, isn't it, that one should have to spend time defending hunting as a humane conservation practice? I find myself in a very puzzled state of mind over the 'Friends of the Animals' (FOA) organization.

It goes without saying that a competitive spirit does good for all concerned, however, the FOA organization is very much an extremist group. They cannot possibly do anything but harm the present programs in practice by the federal and state conservation agencies. We, the outdoor people, whether a camera or rifle hunter, must become organized in an effort to thwart this strong opposition.

I feel certain that this organization will accomplish some of their goals, with the financial backing and political radicals they have as colleagues. But at the same time I am sure that the American Sportsman will benefit most. Now is the opportune time for us to unite and prove to this organization and similar groups that they can do no good for wildlife. As a group of united men and women, we can ward off many of the radical ideas this group is generating.

To me, it is apparent that this FOA organization is an eastern based society that has little understanding of habitat control versus animal population. They think nothing of the slaughter of countless domesticated animals so they might enjoy steak or chops . . . that these animals are primarily raised simply to be slaughtered for food . . . and that they never realize the freedom of roaming the wilderness such as deer, elk or other big game animals.

I too might appear as an extremist, but it is my sincere desire to see that a middle is reached between the people for wildlife protection and the endangered hunter. Bewilderment is the best way I can describe my feelings about organizations such as Friends of the Animals.

We certainly need to expand more on our conservation practices and must strive to reach a goal of providing for the wildlife population, but at the same time I do not know how this can be done other than the means currently practiced, annual hunting seasons.

"The Hunter," (Jan./Feb. 1972, MO) is he endangering our wildlife or is our wildlife endangering him?' Truly this is a thought to ponder. Only time will tell.

Kenny A. Weekes
Bismarck, ND

state land

I have just read Robert Rothweiler's article, "Access," in the Jan./Feb. 1972 issue of MONTANA OUTDOORS. While I don't wish to be critical, I do feel he has over-simplified the question of sportsman access on state-owned and leased grazing lands.

Many of us see no legitimate reason why these lands should not be available to us for recreational purposes. Federal public domain lands are. Several interested people (including myself) have suggested to Montana's Constitutional Convention delegates that the right to access be constitutionally guaranteed.

The public in general, I am sure, is unaware of the true situation regarding these state school sections and just how much revenue is contributed to the school system by the leases. Most people, if they think about it at all, assume the leases pay some sort of rate based on animal units-per-month and that the state actually gets a fair and reasonable return from these lands. NOTHING could be further from the truth. Actually, most of these school sections are leased on a flat fee-per-year basis at an unrealistically low figure. When you consider that many stockmen are leasing state land—good grazing land—at as little as 20¢- to 25¢-per-acre-per-year (tax-free of course), it must be conceded that this represents a REAL STEAL for certain ranching interests. Most of such areas are fenced and posted, with signs saying, in effect, "KEEP OUT, YOU SO AND SO." Is it any wonder the average hunter or fisherman, seeing *his* land, closed in this way to his entry and use, feels a great deal of frustration about the system?

I for one simply cannot accept Mr. Rothweiler's statement, "The basic conclusion reached was that diversified use of state land, including recreational use, will become feasible only when the State of Montana assumes a direct obligation in the management and protection of these lands."

—Don I. Osburn
Great Falls, MT

good job on the tick article

There was an article about ticks which appeared in the Jan./Feb. 1972 issue of MONTANA OUTDOORS. Miss Fenner did a fantastic job on the article—leaving no questions at all. Congratulations to her on a fine job.

Thomas J. Gerrity
Great Falls, MT

the wilderness way

The Wilderness Society is inviting everyone interested in a true outdoor experience to participate in their new program, "A Way to the Wilderness."

Nearly 100 exciting trips are planned for 1972, all of which are designed to help the American public enjoy their wilderness heritage, according to program director Bob Cooney.

Participants have a wide choice of times, prices and modes of travel (e.g. backpack, horseback, canoe, rubber raft, cross-country ski and snowshoe). The Society asks that interested parties apply early since the size of each party is limited to assure a quality wilderness experience. They usually fill up far in advance.

For more details on the program or on a specific trip, send for a free brochure, "A Way to the Wilderness — 1972." (Address — The Wilderness Society, Western Regional Office 4260 East Evans Avenue, Denver, Colo. 80222). Trips planned for Montana and surrounding states are listed below.

SELWAY - BITTERROOT WILDERNESS — July 13-23. From Missoula, Montana. John Buker, outfitter. $375. (horseback)

SUPERSTITION WILDERNESS—Mar. 28-April 3. From Apache Junction, Arizona. Bill Crader, outfitter. $240. (horseback)

LINCOLN - SCAPEGOAT WILDERNESS — July 14-23; July 28-August 6. From Helena, Montana. Wild Country Outfitters. $355. (horseback)

BOB MARSHALL WILDERNESS — July 17-28; July 31-August 11. From Missoula, Montana. White Tail Ranch, outfitter. $385. (horseback)

WEMINUCHE WILDERNESS — July 18-25; August 14-21. From Wagon Wheel Gap, Colorado. Bibs Wyley, outfitter. $275. (horseback)

BANFF NATIONAL PARK WILDERNESS — July 21-30; August 1-10. From Banff, Alberta, Canada. Bud Brewster, outfitter. $285. (horseback)

NORTH CASCADES WILDERNESS — August 1-10; August 13-22. From Wenatchee, Washington. Claude Miller, outfitter. $355. (horseback)

YELLOWSTONE WILDERNESS — August 3-14; August 17-28. From Jackson, Wyoming. George Clover, outfitter. $385. (horseback)

ABSAROKA WILDERNESS — August 5-14; August 18-27. From Billings, Montana. Duane Neal, outfitter. $360. (horseback)

FLATHEAD WILDERNESS — August 11-20. From Great Falls, Montana. Chuck Blixrud, outfitter. $355. (horseback)

SAN JUAN-RIO GRANDE WILDERNESS — August 15-26; September 25-October 2. From Durango, Colorado. Bill Crader, outfitter. $385. (horseback)

LINCOLN - SCAPEGOAT WILDERNESS — July 1-8. From Helena, Montana. Don Merritt, outfitter. $230. (walking trip with packstock).

GRAND GULCH WILDERNESS — April 10-15. From Blanding, Utah. Wonderland Expeditions, outfitter. $160. (walking trip with packstock)

LA GARITA WILDERNESS — July 5-12; August 1-8. From Wagon Wheel Gap, Colorado. Bibs Wyley, outfitter. $230. (walking trip with packstock).

WEMINUCHE WILDERNESS — July 9-16; July 23-30. From Creede, Colorado. Charles Kipp, outfitter. $230. (walking trip with packstock)

MISSION MOUNTAINS WILDERNESS — July 21-28; August 1-8. From Missoula, Montana. Bud Cheff, outfitter. $230. (walking trip with packstock)

GROS VENTRE—July 13-22; July 25-August 3. From Jackson, Wyoming. Frome and Hyde, outfitters. $265. (walking trip with packstock)

IDAHO WILDERNESS — August 4-12. From Challis, Idaho. Wilderness Encounters, outfitter. $225. (walking trip with packstock)

SELWAY - BITTERROOT WILDERNESS — August 8-16; August 19-27. From Missoula, Montana. John Buker, outfitter. $235. (walking trip with packstock)

WESTERN TETON WILDERNESS — August 17-26. From Jackson, Wyoming. Frome and Hyde, outfitters. $265. (walking trip with packstock)

POWDERHORN WILDERNESS—August 6-13. From Gunnison, Colorado. Farrel Hawk, outfitter. $235. (walking trip with packstock)

GLACIER NATIONAL PARK WILDERNESS — August 5-12. (for less experienced hikers); August 15-22. (for less experienced hikers). From Kalispell, Montana. Gary Abbey, outfitter. $230. (walking trip with packstock)

WASHAKIE WILDERNESS — August 6-15. From Jackson, Wyoming. Frome and Hyde, outfitters. $250. (walking trip with packstock)

ESCALANTE CANYON WILDERNESS — April 16-22; October 8-14. From Cedar City, Utah. Peace and Quiet, outfitter. $215. (backpacking trip)

CAPITOL REEF NATIONAL MONUMENT WILDERNESS — May 28-June 3. From Salt Lake City, Utah. Peace and Quiet, outfitter. $205. (backpacking trip)

FLAT TOPS WILDERNESS — July 13-19; July 14-20. From Glenwood Springs, Colorado. Adventure Associates, outfitter. $205. (backpacking trip)

GLACIER WILDERNESS — July 18-24. From Teton Village, Wyoming. Peace and Quiet, outfitter. $215. (backpacking trip)

CANYONLANDS WILDERNESS—May 14-20. From Moab, Utah. Peace and Quiet, outfitter. $215. (backpacking trip)

DARK CANYON WILDERNESS — May 14-21. From Moab, Utah. Adventure Associates, outfitter. $215. (backpacking trip)

SAWTOOTH WILDERNESS—July 23-29. From Sun Valley, Idaho. Wilderness Encounters, outfitter. $205. (backpacking trip)

GORE RANGE-EAGLES NEST WILDERNESS — July 25-31; July 26-August 1. From Vail, Colorado. Adventure Associates, outfitter. $205. (backpacking trip)

HOLY CROSS WILDERNESS—August 24-30; August 25-31. From Vail, Colorado. Adventure Associates, outfitters. $205. (backpacking trip)

JEWEL BASIN WILDERNESS — July 25-August 1; August 8-15. From Kalispell, Montana. Don Merritt, outfitter. $140. (backpacking trip)

HIGH UINTAS WILDERNESS — July 30-August 5; August 27-September 2. From Vernal, Utah. Peace and Quiet, outfitter. $205. (backpacking trip)

WEST ELK WILDERNESS — August 7-16; August 8-17. From Gunnison, Colorado. Adventure Associates, outfitter. $225. (backpacking trip)

MISSOURI RIVER WILDERNESS — June 23-30; July 23-30. From Havre, Montana. Nick LaFrantz, outfitter. $325. (water trip)

HELLS CANYON WILDERNESS — July 3-8; September 18-23. From Lewiston, Idaho. Wilderness Encounters, outfitter. $280. (water trip)

CATARACT CANYON WILDERNESS — July 10-15. From Green River, Utah. Wonderland Expeditions, outfitter. $245. (water trip)

WILD MISSOURI CANOE WILDERNESS — June 14-21; June 25-July 2. From Great Falls, Montana. Adventure Associates, outfitters. $305. (water trip)

VOYAGEURS NATIONAL PARK CANOE WILDERNESS — July 11-17. From International Falls, Minnesota. Jackfish Outfitters, outfitter. $215. (water trip)

ESCALANTE CANYONLANDS CANOE WILDERNESS — September 16-22. From Green River, Utah. Adventure Associates, outfitter. $265. (water trip)

FLAT TOPS WILDERNESS SKI TOUR — April 3-7 (for the experienced cross-country skier). From Denver, Colorado. The Wilderness Alliance, Inc., outfitter. $205. (ski and snowshoe tours)

EAGLES NEST WILDERNESS SNOWSHOE TOUR — February 9-13; February 27-March 2; December 8-12. From Frisco, Colorado. Adventure Associates, outfitter. $205. (ski and snowshoe tours)

(F&G photo by Dick Ellis)

BANNACK

GOLD DISCOVERED ON GRASSHOPPER CREEK—and the rush was on! It was August 1862 and John White, with a party of prospectors, had just made the first major gold strike in what was to become Montana. Overnight, Bannack was born and within a few months it had become a thriving, lusty, brawling mining town of some 4,000 citizens.

Many of these early arrivals soon moved on to easier and

BY DICK ELLIS

better diggings, but Bannack lived on to play a most important role in Montana history. Gold mining in all its phases was well represented here, along with politics, frontier violence, vigilante justice, early day commerce and pioneer domestic life and religion. An impressive array of "firsts" has long been associated with Bannack, perhaps the most important being its status as the first capitol of the new Territory of Montana.

When gold was discovered, Bannack was far removed from any seat of government or law and order. At first the miners organized mass meetings to establish necessary rules and regulations, but it was soon determined that a stronger central government was needed. Sidney Edgerton, a Bannack citizen who was then Chief Justice of the Idaho Territory, led a delegation to Washington to ask for separate territorial status for Montana (part of the state was included in the Idaho Territory at the time). Eventually the mission was successful, and in June 1864 the new Montana Territory became a reality. President Abraham Lincoln appointed Edgerton as governor.

By Dec. 12, 1864, necessary elections had been held and the "Bannack Legislature" convened. This session was Bannack's first and last. The next year the legislators followed the gold boom to Virginia City and took the seat of territorial government with them.

Although the majority of early miners were hard-working, law-abiding citizens, the lure of "easy money" soon attracted an abundance of Civil War deserters, desperados and highwaymen.

One of the most famous episodes in Bannack's history concerns the first and worst of these, Henry Plummer. Arriving on Christmas Day, 1862, Plummer soon established himself as a respectable citizen and contrived to be elected sheriff of Bannack and nearby Virginia City. However, unknown to those who placed him in office, Plummer's scheming mind and fast gun also won him the position of leader of the territory's criminal element. In this dual role he led his band of road agents in the cold-blooded murder and robbery of hundreds of citizens. Obviously, with law enforcement controlled by the criminals, the situation was desperate. In response, the citizens took law into their own hands and formed vigilance committees to track down the desperados. By January 1864 Plummer's reign had come to an end. He, along with several of his henchmen, were found out, captured and hanged in Bannack by the Vigilantes, thus ending an episode in Montana's history which is a classic of frontier violence and justice.

Although the rich strike in Alder Gulch (Virginia City) caused a sudden decline in Bannack's population, the town continued to thrive. There was still gold to be found. Gold mining in all its phases is an essential part of the story of Bannack.

At first, the gold was wrested from the soil by pick and shovel, gold pan and sluice box. It was slow, back-breaking labor, but where the precious metal was concentrated near the surface, fortunes could be made.

Very early in Bannack's history, however, hard-rock mining came into its own. Gold-bearing ore from the surrounding hills was carried to a handmade, water-powered stamp mill near the Grasshopper Creek. Here the ore was crushed to free the precious metal. Soon Bannack was to see several other crushers in operation and could claim the state's first water- and steam-powered stamp mills.

Hydraulic mining employed powerful jets of water that tore into the rubble of stream banks and hillsides to loosen the gold-bearing strata. To supplant the limited supply of water in Grasshopper Creek, seven ditches were laboriously dug to tap addition sources, one of these bringing water from 40 miles away.

In later years, still more gold was scooped from the gravel of the creek by five floating dredges. One of these, the F. L. Graves, was the first successful electric dredge ever to operate in North America. This dredge, launched in 1895, was powered with electricity produced by a water-powered generator located across the creek from Bannack.

The basic story of gold mining, the saga of Henry Plummer and the early territorial government all play an important part in Bannack's past, but there are other equally important, if less dramatic, stories. These center around the people who lived and died in Bannack: people who sought education for their children in Montana's earliest schools, who sought protection in a fortified town in the face of impending Indian attacks, and who joined together under Brother William Van Orsdell to build one of the territory's first churches. There is also the story of commerce: of those who chose the more stable vocation of storekeeping, of the hardy freighters whose ox trains brought "necessities" (one of them was often liquor) over impossible roads and through killing winter storms from far distant Salt Lake and Fort Benton, and of the daring pony express riders who brought weekly mail by way of Fort Bridger, Wyo.

Here, too, is the story of a Chinese population,

EDITOR'S NOTE—Richard I. Ellis, 33, completed his undergraduate work in wildlife technology at the University of Montana, Missoula, in 1963. Two years later he received a Master of Science degree in the same field. He has served with the department's Game Management and Information and Education Divisions, and is now District Manager for the Recreation and Parks Division in Helena.

BANNACK continued

so common to early mining towns, that performed much of the labor and successfully worked many "worn out" claims through sheer patience and determination.

Without a doubt, the story of Bannack is the story of Montana's past, and it is all held within the declining remains of what was once one of Montana's major cities.

Bannack's past glory is well established, but its present status is debatable. To some people it is just another of Montana's many ghost towns, a conglomeration of shacks and junked cars, a summer haven for harried Californians, and a refuge for reprobates and part-time lawbreakers. To many, though, Bannack means much more. It is a State Monument, a historic landmark listed in the National Register of Historic Places, and above all, a perfect opportunity to preserve and interpret Montana's priceless heritage on the very ground where much of the action took place.

To some Montanans, the potential value of Bannack has been obvious for many years. Foremost among those who have worked for the preservation of Bannack is Mrs. Elfreda Woodside of Dillon, who, as president of the Beaverhead Museum Association, led a fund drive which resulted in the transfer of a substantial portion of Bannack to the State of Montana and the establishment of Bannack State Monument in 1954.

It was hoped that this state ownership would result in a program of acquisition and preservation on a larger scale than had previously been possible. It was soon apparent, however, that Montana's legislative body had little real interest in the birthplace of Montana government and sufficient funds were not forthcoming. Little more could be done than to hire a part-time caretaker to protect the state's interests.

In 1965, however, responsibility for the state parks system (which was formerly lodged in the Highway Department) was transferred to the Fish and Game Commission. A growing national interest in outdoor recreation stimulated a more fully financed state parks and recreation program, and by 1968 limited funds were appropriated for preservation work in Bannack.

Since 1965 the state has attempted to acquire additional property when clear title can be assured. It is felt that this acquisition program is essential to the future of Bannack if its potential is ever to be realized, since only about one-half of Bannack is actually in state ownership. The possession of the remaining portion by private owners creates a dilemma that stymies any ambitious and meaningful attempts to bring the history of Bannack to life.

The people of Montana do not actually have Bannack as a State Monument—only disconnected pieces of real estate in a situation wherein trespass, incompatible buildings and land use, vandalism and unsightly junk collection cannot be controlled. The state can do nothing to prevent the destruction or "modernization" of the historically valuable buildings now in private hands.

Although the situation is frustrating, some progress is being made and the state has undertaken surveys and quiet-title action necessary to open the way for further acquisition. Still, the basic problems of limited financing and incomplete ownership, may prove to be insurmountable barriers to the full realization of Bannack's potential as a "living museum" of the early development of Montana and the West.

Bannack had its heyday more than 100 years ago, and as gold played out much of Bannack died. Most of the structures that made up the town are gone forever and more are slowly being lost every day, but part of Bannack remains to recall the drama of our state's history. That history is the real gold within the base ore that is Bannack. It represents a wealth that can be proudly shared by the citizens of Montana and from which we can all benefit in ways never envisioned by the early prospectors of Grasshopper Gulch.

LOCATION

Bannack is located in southwestern Montana, some 25 miles west of Dillon. From a well-marked turnoff on U.S. Highway 278, the visitor follows two miles of gravel road to the site.

Watch for these features in the May/June 1972 issue of MONTANA OUTDOORS.

- . . . Mushrooms—cookery, collection and identification
- . . . the truth about hatchery trout
- . . . boating safety
- . . . the fisherman's right to stream access.
- . . . .Medicine Rocks State Park
- . . . Missouri River Breaks.

THE CATCHALL

notes and comment
by Bill Schneider

As a Very Personal Favor to a Very Fine Lady,

please read "The Bear's Tooth" on page 18.

I distinctly remember that December day when she came sauntering into my office. She was a lithe, slightly built lady near 60. Under one arm was a mass of drawings and maps wrapped in greenhouse plastic and in the other was a aged and battered suitcase containing a heavy load of slides, prints, paper and books . . . and one extra sweater. Both bundles were carried by a remarkable woman named Mrs. Ruth M. Koch.

This woman annually spends weeks hiking, backpacking and photographing the Beartooth Primitive Area in south central Montana. From her adventures she has grown to love and respect this great land. Now she has vowed to do everything she can to protect it.

On her own time and with limited financial resources, she has researched the area's history, written reams of correspondence to congressmen and other influential people, purchased a sizeable collection of expensive color enlargements to illustrate the area, traveled throughout the state speaking to groups and conventions and visited with anyone who will listen to her pleas . . . and all just for the Beartooth.

Three hours after she entered my office, Mrs. Koch headed back to her Butte residence to begin writing this article. In it, she wants to tell you that the Beartooth must be protected from development and why. The article ends on page 24, but believe me, it could go on forever.

NOT A BAD RECORD

In Montana more than 300,000 hunting licenses are sold annually, which means, in essence, 300,000 potential hunting accidents. However, during the last two years, only two direct hunting fatalities have occurred, one each season.

Most of the credit for this record can go to safety-conscious resident and nonresident hunters and to more than 800 volunteer hunter safety instructors who donate their time to guarantee a safe sport.

good news

A recent poll conducted by Louis Harris and Associates indicates that many Americans (or, at least, many New York state residents) rank pollution as their communities most serious problem and are willing to pay for the clean-up.

The specific findings of the poll are: 1. Up to 60 per cent of car owners are willing to pay an extra $200 for a car with a pollution-free engine even if such a motor wasn't required by law. 2. Eighty-three per cent indicated a willingness to buy only returnable bottles and pay a 5¢ deposit. 3. Seventy-one per cent said they are "not at all reluctant" to save old newspapers for recycling. 4. Sixty per cent would accept a $50 per year increase in their total expenditures to reduce pollution. 5. However, only 33 per cent were willing to pay $200 per year to control pollution.

—*Wildlife Management Institute*

every little bit helps

The natural resources program of the federal government now ranks 11th out of 13 budget priorities. Believe it or not, that's an improvement. Last year it was rock bottom.

.22 ammo

In Washington, D.C. recent progress has been made on removing the record-keeping requirements from .22 ammo.

One bill has been recommended for passage by the House Ways and Means Committee and a companion bill in the Senate is being considered.

Senator Gale McGee (D-Wyo.), who sponsored the Senate bill, has labeled the present record-keeping requirements "unfair" and said, " . . . the persons really affected so adversely are law-abiding citizens who pursue shooting as a hobby or form of recreation. The records

THE CATCHALL

also hamper training programs which have been established for safety purposes by our high schools, universities and private shooting clubs."

The Wildlife Management Institute reports that the Treasury and Justice Departments have both called the requirements "useless" and have recommended legislation to remove the requirements.

Do us a favor?

If you plan to go hunting this fall, you can do us a big favor right now. During the weeks just before the opening of most seasons, the department gets swamped with license requests. You can help keep the work from piling up by buying your license early this year.

new staffer

Cecelia Wittmayer, 22, has replaced Louise Fenner on the MONTANA OUTDOORS staff. Miss Fenner left her post to take a position with the Department of Health, Education and Welfare in Washington, D.C.

Miss Wittmayer, Eureka, SD, was graduated from South Dakota State University, Brookings, in 1971 with a B.S. in Science-Writing Journalism. She assumed her duties on February 1, 1972, and her handiwork can already be noted throughout this issue.

Cecelia Wittmayer

ferret deaths

The sudden deaths of four black-footed ferrets—the only females in captivity—has seriously set back efforts to save that species from extinction.

The female ferrets died 21 days after they were live-trapped in a South Dakota prairie dog town and carefully transported to the Patuxent Research Center, Maryland, reports Dr. Ray Erickson, director of the center.

Erickson said that the deaths were apparently caused by distemper, even though "all possible care was exerted in trapping and holding the ferrets." The animals were inoculated with distemper vaccine soon after their capture.

Two males captured at the same time appear to be very healthy in their pens at Patuxent, Erickson added.

Is hunter orange just another lemon?

A law passed by the 42nd Legislature (effective May 1, 1972) that says all big game hunters except archers in "archery only" areas must wear 400 square inches of fluorescent hunter orange has received its share of tongue-lashing.

But that's easy to understand. For years, Montana hunters were required to wear red, yellow or orange in the field. Most wore red, so most hunting garments were red . . . and so were hunter's faces when they discovered that they had to either discard their favorite garb or cover it with orange apparel.

But hunter orange is *not* a lemon.

Since Massachusetts adopted a mandatory hunter orange law 10 years ago, hunting accidents where the hunter was mistaken for game dropped almost 70 per cent. For three years, a southwest section of Maine was used as a test area for fluorescent hunter orange. Hunting mishaps (in the mistaken for game category) were cut in half all three years. In the five states that now require it, hunting safety records are making believers out of the staunchest skeptics.

Fluorescent hunter orange doesn't occur in Nature, so it's instantly recognizable to a color sensitive eye. That makes it much safer than yellow or red, both of which are found in Nature's color scheme.

Of special significance is the fact that hunter orange is so visible in low-light situations such as dawn or dusk and forest shade. Unlike other colors, hunter orange is as easy to see at dawn as it is at noon. Even traditional red fades into brown or black shadows in poor light.

Many hunters argue that the color makes them feel like a flashing neon sign and that it spooks game. Deer, for example, can *not* see orange or any other color. They're color blind. However, deer can see the hunter who is wearing a *solid block* of hunter orange . . . or of red . . . or of black . . . or any other color. As long as it's not broken up, the sharp-eyed deer will spot the block because it's out-of-place.

But even if the color can be spotted by game, it still should be worn religiously. To know that you can be easily seen by other hunters and that you are less likely to be mistaken for game is ample payment for the unproven possibility of a missed trophy.

...on gun control

By querying 43,000 readers, LIFE magazine in its Jan. 14, 1972 issue came up with figures indicating a widespread fear of U.S. crime. Their own homes felt unsafe to 78 per cent; the city streets seemed menacing to 80 per cent. Of families, 43 per cent contained at least one crime victim during 1971; 41 per cent felt that police protection was inadequate; 70 per cent would pay added taxes for improved policing. But 30 per cent of the populace, said LIFE, hedged all bets by keeping a gun for self-protection.

To some this might seem cause for plaster-tight gun-control edicts, but the study also brought out the fact that the queried readers saw no virtue at all in that approach.

"Gun Control laws, particularly those proposed by Senator Hart of Michigan and Mayor Lindsay of New York found no sympathy . . . ," said the LIFE article. Responses indicated the police should offer gun-handling clinics, every criminal is a potential killer, and so on.

LIFE's 30 per cent figure for households containing guns for protection may or may not be correct. Perhaps greater weight should be given the higher figures, including firearms used for target shooting and hunting rather than self-defense, which have been cited in other surveys. But it is clear that the public does not want confiscation, does feel that the road to crime control is not by tightening up on firearms but rather by tightening up on criminals.

—*Warren Page*
National Shooting Sports Foundation

big business

We often note how much money the sport of hunting pours into our economy. However, we couldn't come close to figures on hunting just released by the Wildlife Management Institute concerning the Federal Republic of Germany.

German sportsmen bag 540,000 deer annually in the field and another 60,000 deer are lost on the roads to automobiles.

Compared with the 105,000 deer harvested in Montana in 1970, that statistic borders on the incredible.

The Institute also reports that these surplus German deer were harvested on a sustained yield basis and that all came from a land area about the size of the state of Oregon.

our goof

In the Nov./Dec. 1971 issue, there was an error in the listing of Montana Big Game Harvests on page 30.

In 1964, only 40 grizzly bears were legally taken by hunters, not 115 as was printed.

tax time

If you're one of those who is just recovering from his income tax paperwork or is patiently watching the mailbox for a tax refund check, don't feel alone. We also have our tax problems.

For the calendar year, 1971, we paid $38,572.77 to the counties in lieu of taxes that would have normally been assessed on lands now owned by the Fish and Game Commission. This, in essence, puts us on the county tax roles.

clean counties

The Rocky Mountain region has six of the 10 "healthiest" counties in the United States according to a recent survey by the Environmental Protection Agency. One of the six is Glacier County, Mont.

wildlife shorts

More than 250 species of foreign game birds have been introduced into the United States.

* * *

A small sparrow has 14 vertebrae in its neck while the lofty giraffe has only seven.

The Geo-duck is not even a bird, let alone a duck. It's a clam found along certain parts of the Pacific Coast.

* * *

Grass filters polluted air and returns it to the atmosphere as clean, life-giving oxygen. Fifty square feet of lawn provides enough oxygen for four adult human beings.

The mountain lion is one of the few animals that declines to physically protect its territory.

* * *

Although they look like flowers, sea lilies aren't even plants. They're animals.

* * *

Porcupine quills are nothing more than three-inch hollow hairs.

(photo by Mel Ruder)

Don L. Brown Chosen

Commission Names Director

HELENA—The Montana Fish and Game Department has a new director.

In their January meeting, the Fish and Game Commission named Don L. Brown to fill the director's chair and replace Frank H. Dunkle, who resigned.

Brown joined the department in 1941 as a game warden stationed at Harlowton. Since then, he has served the department in various capacities for 31 years.

Prior to his promotion to director, he was district supervisor at the department's Kalispell office. Other former positions include game warden, biologist, pilot-biologist, warden supervisor, chief of law enforcement and deputy director.

The new director attended Northern Montana State College, Havre, for two years and then went on to earn a B.S. degree in zoology with a wildlife conservation option from Montana State College (now Montana State University), Bozeman. He has also taken courses at Montana State University, Bozeman, Texas Tech., Lubbock and the University of Montana, Missoula.

Brown is a veteran of two wars — the Korean and World War II. He holds a commercial pilot's license for both helicopters and fixed-wing aircraft.

A native of Big Sandy, Mont., he and his wife, Esther, have four children.

Department Produces Two New Films

HELENA — The Information and Education Division has produced two half-hour films that are now available for public use from the department's free loan library.

"The Yellowstone"

Within Montana, the Yellow stone River drainage amounts to one-fourth of the state's land area, contains one-fourth of its people and furnishes one-fourth of its real income. In addition, the drainage has a real wealth of fish and wildlife.

"The Yellowstone" shows major threats to wildlife and suggests ways and means of preserving and improving water and other qualities of this substantial portion of Montana.

"Rock Creek"

Nationally famous as a blue ribbon wild trout stream, Rock Creek has become the extremely controversial focal point of conflicting water and land use philosophies. "Rock Creek" pictures on film the intricate ecological web that produces an outstanding trout stream. The film shows why a multitude of skills and a great amount of cooperation are necessary to maintain the fragile balance of Rock Creek.

One of the many scenic views found in the famous Rock Creek drainage. (F&G photo by Craig Sharpe)

National Wildlife Week Scheduled

WASHINGTON, D.C.—March 19th-25th has been named National Wildlife Week for 1972 with "Ecology: A Wild Idea" as its theme.

The week is sponsored by the National Wildlife Federation and its state affiliates and will focus on the threat to wildlife because of the environmental crisis. Film star-ecologist Robert Redford has been named national chairman of the week-long event.

The bald eagle has been called a symbol of strength, freedom and quality of life. The national emblem is pictured on everything from official documents to beer cans. But, the real eagle, the wild eagle, is in serious trouble and is fast disappearing from American skies. Its plight will be an example of the fate of other species if man continues to interfere with the natural environment.

Throughout Wildlife Week the national federation and its three million members will be urging people to reevaluate their relationship with the environment and to make a personal commitment for environmental quality.

Redford has added his plea for the end of environmental destruction and wildlife extinction. Let's hope environmental control is another wild idea that works.

Why Should You Buy A Sportsman's License?

by Bob Carroll

The $20.25 Montana Sportsman's License has this written on its face—"The holder of this license is dedicated to the ideal of understanding and friendship between land-owner and recreationist. Courtesy, consideration and common sense are the keys."

That statement means that the person buying this license pledges himself to uphold the high ideals of good sportsmanship and friendly landowner-recreationist relations.

The first Sportsman's License was sold in 1967. At that time, it offered somewhat less (in terms of what it authorized the holder to do) for the money than it does now. This special license was offered to allow sportsmen to directly aid in financing programs to improve landowner-recreationist relations and strengthen educational programs.

In 1967, 472 Montanans put their money where their pride was and bought this license. The Sportsman's License decal on their vehicle's windshields proclaimed to the world that these people would practice the ethics to which so much lip service is paid. In 1971, the number sold grew to 865.

Today, the Sportsman's License authorizes its holder to fish and to take upland game birds, one deer, one elk and one black bear. If bought separately, those licenses would add up to $17.25. The extra $3 helps fund the "3-C" Program and other projects. "3-C" stands for "courtesy, consideration and common sense" and is a program to assist sportsmen and landowners in ironing out specific problems. The money also goes into an exhibit trailer. The mobile exhibit is available to schools, clubs and civic groups and contains materials illustrating fish and game management basics and hunter safety practices and displays urging cooperation with landowners. The trailer was built so that displays could be readily adapted to emphasize any particular subject or group of subjects within the realm of department responsibilities. Additional emphasis on sportsmen-landowner relations is directed into publications, films and radio programs.

Sportsman's Licenses are consecutively numbered, and anyone holding a number below 500 can apply for the same number year after year. When you encounter a low-number holder, you can be sure of two things. First of all, he will practice what he preaches about good sportsmanship. Secondly, he has been actively contributing to better hunting and fishing ethics for several years.

These sportsmen can display their participation by using the windshield decal and by wearing the shoulder patch that comes with the license. These visible signs let the license holder's peer group know exactly where he stands concerning hunting and fishing ethics. It also tells the landowner that cooperation with him has already been pledged.

If you would like to go beyond the ordinary and become a Sportsman's License holder, they are available in late April at every Fish and Game district office, at Fish and Game headquarters in Helena and from license dealers.

The convenience of having one license covering fishing, upland game birds, one deer, elk and black bear is great. But the real value of this license is the direct participation in programs aiding continued friendly relations between recreationists and landowners.

STATE OF HARMONY

FOR over 30 years it has been my privilege and pleasure to work throughout the State of Montana with the Montana Fish and Game Commission. Never have I met a man or woman who wasn't eager to discuss our fish and wildlife resources. Whether they believed this was my only interest, and perhaps the only subject I was qualified to discuss, or whether it was simply our common interest may be questioned. I choose to believe the latter. If Montana has one common denominator, it is the fish and wildlife resource we are struggling to live in harmony with.

With this interest in the minds of all my predecessors, as well as myself, it is mandatory that our knowledge of fish and wildlife needs is always the best available. To acquire and expand this basic knowledge of the resource for which we are responsible, this department must be staffed with well-qualified and completely dedicated personnel. My long association with personnel in all branches of this department leaves no doubt in my mind that we have the best qualified and most dedicated people any state could be endowed with. They are here because they love the environment; they are inspired by the challenges and stimulated by the work in their chosen fields. These individuals represent this department's basic strength.

At this point it is easy to draw analogies between strong ecosystems and strong man-made institutions. Both derive their stability from the strength of their individual cells or members. I believe the quality inherent in this department was further recognized by the last legislative assembly. They chose to include Fish and Game representation on a variety of advisory, appeals, and registration boards associated with basic environmental legislation. We accept this as both an honor and a responsibility.

Somewhere in the halls of law-making, before my time, a legislature with foresight and knowledge of people management realized there wouldn't always be agreement. People making recommendations for scientific resource management and people less acquainted with all of the ecological forces active in animal populations don't always agree.

To integrate the hard, cold biological facts of life with frequently contrary popular beliefs, a commission was created to act as mediator between the various points of view — an obviously essential ingredient for representative government.

The commissioners are also dedicated public servants, serving with little monetary compensation and frequently sacrificing substantial amounts of time that could represent profits to them in pursuit of their own livelihood. The commission, in addition to the biological facts of life, must consider a multitude of special interest groups, some with and some without ulterior motives.

It is obvious that "people problems" frequently become as complex as ecological problems. Solutions can only come from people functioning together in a harmonious state, just as ecosystem integrity can only be preserved when all functioning parts are allowed to work harmoniously together. As director, it is my job to strive for this state of harmony.

Don L. Brown

A LIVABLE ENVIRONMENT FOR WILDLIFE IS A QUALITY ENVIRONMENT FOR MAN